

```

gggccgatac gacgaggaaa atatgaagag tacggtagtg ccccttcgta cggcatcatg      60
ctggcggtag ctgcgggggtt agccgagagc aggggattag gcggatttat atcgccaatc    120
acttcggcga ccatgccata taccccggtg tcgtgcctca tttattcgtc cgatgaccga    180
agctgttcgg tgcgggtccac gaacggcgtg ctcatagaag caccttatac tgatattact    240
aagacgatat tgcacggata ggagcttcat tgggtataga ctatgccgag acttgagttg    300
ctacaagggg ggggtgtttt cattgtggcg tttgggtgta ccttgtagag cgcaaggagg    360
cttttgacag atgcccgga ttcccgatg ccccgagtac gaaggttgag tatacttcat    420
tcggcacgaa agttatcagg ccgatgaaga aaatagggtt ggctatccga tacgcatggc    480
tatatcgacg aaaagtaccg ggata

```

(2) INFORMATION FOR SEQ ID NO:615

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 529 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:615

```

gcatcagtag tatgagcgaa aggtattgat ttcagtgttt ttcaggttgt agctccgtcg      60
ggaatcgaac ccgaatctat ggtttaggaa accactatct atccattgaa ctacagagcc    120
gaaagaacaa gaccgacctt gatcggtttg tctcttttta ttcggggac aaagataggg    180
aataaaccaa cttaatttgt tccttttctt tcttgagcaa gcgttcggcc gcttcagatg    240
ttgcttctgt cgatagtatt cctgactata accggggaaa tcaggcatgg cactaaaccg    300
tatccatttg tcttgaatcg gccactctcc tctttcttgc gatgccatcc atgtacttta    360
ccatcagata ttccccaaga cgcttccaac ggcagttgct ttctctgcct cttcgttgct    420
gtaatttgtc aggaatgcta cgctttggcc ggatccagag cgtatagctc ttgtgcttgc    480
ttgtcgatag cggaagtatg cggtcacaag ctccttcgag ttcacgctg    529

```

(2) INFORMATION FOR SEQ ID NO:616

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 459 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...459

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:616

```

cactgtttttt ggcattgctg atgggatcat ggatgtcgat aggttcgtgc agatattgta      60
gtcaccgcac  aggatcaagt tagggcgact cttgcggatt cattgacata agattggaag      120
tgctccagcc  aaaccatctt gaaggccgac gctcatcgcc actcgtcccg gatggatgat      180
aaacgcttac  gatagaagat cgccgaaatc ggcacggata aaacgacctt ccgcatcgta      240
ttcttcatac  ccattgccata ttctatatga tcaggctgat gctttgtgat gataccacac      300
cgctatatcc  tttcttttga gcccgaaaaa aagatacgag ccgtagccca gtgcttcaaa      360
tccttcattt  ttccaattgg tcattctgca tctagtttcc tgcaggcaca agcacatcag      420
gattctcttc  tcgaagccaa cgatcagatc ttttcttca                                459

```

(2) INFORMATION FOR SEQ ID NO:617

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 735 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...735

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:617

```

ggcaactata tgatcgattt gttgttagct aatgtttgta agcaaaatac acccgcttc      60
cttatgaaat agctcgtttg gcagaagata ttgcaggagt ttgatggtaa ccatgccttc      120
tcaacaagac ttccgccatc cggaatggc ccgacgtaaa agaaatatct tgcagggtgca      180
acaggcaaat cgacagaaac cgtatgcgtg ttctgcgttt gatagagaat atcacgctgg      240
gaacactgcc gtcggttatc gaaccgagtc tatgcacgga gccggatctc ctcagctcag      300
agaatcatga tcgctcgtea gggagatctt gagggcaaga aaagcttgca cggggcgattg      360
ctcatatcga cgaatcactc gataagtaat cgctctcctt cacttatctg tttgatgtat      420
ttagaagacg gattataacg caccgtgaaa ccggatacaa tgacagaaga aatagtcgaa      480
ctcgctactg cgagcggatc agtccgctac tgcgcagtea cgggggacgac ttatctttac      540
tcaaatcaag gataagaccg tttttgtgcg gttttccgga gcatgccgtt ctgtccggca      600
gcacatgaga cagtagaaaa aatcggttaa gccatgaacg cgaatacttc aaagatgaca      660
acatcgatgt cattcttgaa aatagtttag cgatgatctg ttagaacaag ccaagaatat      720
tttgagaaaa cccaa                                735

```

(2) INFORMATION FOR SEQ ID NO:618

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:618

gttccaaaat	tttcctgtta	tgcgttccta	aaaacgtggc	tcgagaaaat	ttcgttttgg	60
ttcgggaaga	aaataattct	cgcgccaaag	cgaaaaaaag	tcgcgcgtgt	tttccggaaa	120
acgtggcccg	gaattttcga	tgattccgtt	cgtaaaagag	gaagtgtcaa	aattcagttt	180
agagtaaagg	atactacatt	tgtataggaa	aaccgctacc	aaatggacaa	aatcatccta	240
cttgaagcgg	tttttccttt	atgattaagg	tggcatttgt	gtctttttga	tagtggaaaa	300
tccttttttc	ggattttgac	acagccccct	tgtatatccg	aggacgaaga	aacccgtact	360
ctttagtgg	tcttcatcag	gcgttccaga	cgagcagttg	atagtcgtag	aacgagcggg	420
cggcagcgtt	gcccgtggcc	tgcgattgcg	atagatggtc	tgcacgcgct	tgagttgttg	480
cagtaggagg	tgcaatcact	tcattcgggg	cctgcttggg	gaaggccgta	agacggaaga	540
ggaatcggct	ccgtcc					556

(2) INFORMATION FOR SEQ ID NO:619

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 628 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...628

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:619

gtgaatagac	tcacgattgt	cctcggcata	agcatagcca	gagcaaaacg	agaaagctga	60
ccagtagatt	gacgccacaa	ctgtagcgat	aggcgcactc	acccgtcccg	gatttttagc	120
cccgtagtgt	aaacctacga	tcggctgata	ccctgagcca	caccgatgat	aatcatgaaa	180
aagagcatgg	catagcattg	ataatcccga	atgctccgat	ggccaagtcg	gtagcatctg	240
ctgtccgcgg	taggatacga	aagaacgatt	catgatgata	ttgaccagac	tgccgtaagg	300
tgcattggcg	aggggtgctac	ccctatagcc	gttatgccgc	cgacaccggc	agggacaggg	360
ggaaagccga	gcggtggaaa	cgtaacgata	tgccttacgg	aaaaagtgcg	aaaggacgta	420
gaccgaacat	actatcatgg	aacgacagtc	gctatggcgg	ctccgcttat	ccccatcccc	480
aacggataga	gaagatgtag	tccagcacca	cgttcgtcat	agccccgatg	atcatcgtat	540
catggctttg	cgcggatagc	ccgaaagctc	tcatgatagc	attgtagcga	agcttcagag	600
ctgagaaaat	attggcagga	ccacgtat				628

(2) INFORMATION FOR SEQ ID NO:620

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 660 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...660

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:620

```

caagaagatg gcctcgccaa ggcttatatg accgtgnaga aaggatccgt atgcgtcaat      60
ggcgtgaagc cttgaccgta tgcgacttcc ggcatgaaaa cttccgtgtg gctatcatcc      120
cctatactcg cgaccatacg aacttctccg cattgtctcg ggtagtgtgg tcaatctgga      180
attcgacatt gtgggggaata tctcagcaag atgtccaat accaatgaac ccgaacgact      240
tttacccttg atcgaacagc gacagagcga tcgcaagttc gatcccgacc gcccgtagcc      300
gaagacgtgc ttcagcgcac catcgaagcg gggcgtctct cccctcagcc tgcaattcgc      360
agccttgag ctttgctgct gtcaccgatc ccacactcgc agacaactgg ctgaagcctc      420
atcgtcacgg ttattgggta taatcaactc acgcgtcagg ctcccgtaga catcgtatta      480
gtogaagaga agccaacttc acggcgacca tcgggggggaa aatgaaaaaa atccactatc      540
caatatcgac ctgggcatag ccgccgcaca catcacgctg gcagccacgc cgaaggtctc      600
ggcagctgca tcataggctg ggtaaacgaa gccaaagaccg cgaaatactg ggcattccct
660

```

(2) INFORMATION FOR SEQ ID NO:621

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 611 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:621

```

tacttatgtg catggtatcc tggacaatcc ggccgtaata gactatctgt ttcaccgtat      60

```


gcagacaaaa	tggaagagcg	gaaaagcttt	cgactatgcc	ggctataagg	atgagcaata	120
cgataaattg	gccgaccatc	tgagacgtat	gccgatgtcc	cgctgattta	ccaactgatg	180
aaagacgatg	attaaagaca	cggagatgac	ctctaccgtc	acggccccc	tcgggcaa	240
ttcagtcgaa	tggtttataac	gccaccgagc	gtcagggatt	gctggatcac	cttccaggag	300
attggatagc	atcggttcct	atccggagcc	ggagccttat	tcttgagaa	aggtttgcc	360
gattatcacg	gtatagctgc	cgattcaatc	aggtgaccag	cggtgccacc	gaagctattt	420
atctcatagc	gcaggctttc	ctggatcttc	ttcagccgta	gtagttccca	ctttcagcga	480
atatgccgat	cttgccgggt	gcattggccat	cgtgtggatt	ttatttccaa	gcccgaagag	540
cttcttctcg	atatgatatg	gtctggctct	gtaatccgaa	caatccgagg	gacgtgtttg	600
gaagacaagc	g					611

(2) INFORMATION FOR SEQ ID NO:622

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1372 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1372

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:622

tgcttcttcg	agacagtccg	aatgagtccg	atccacaccg	aaatcattgt	gaatatgagc	60
gtattcttcg	tgatgtcgtc	cacgtcgtt	cgttcgtgtc	gctggttaga	gtggcgaaa	120
caccgttctc	gtcgcgatag	acaggcagcc	ttcgatatcc	aattcgccac	gtccgattcc	180
gacaaaaggt	tcgtctcata	tcccacgccc	aatacaatgt	cggagcctac	cttatcacgg	240
tcgaaacccc	gatagagtac	cctgtacgaa	gagataaaa	gttgccctatg	tccacaaa	300
attgatataa	ttaaagcccca	atccgcgtac	tacacgtcgg	gacactgctc	ggcagacggc	360
ctgtagcggg	taggatcctt	gccggtacgt	tttagcagct	gcgtgtggct	gctatggcag	420
ggatttcttt	gatggccggg	agtcgcaagt	ctgtatcagc	cgatcaagcc	tctccgttca	480
tctcatctat	agagtggatg	gcgaccggcc	tgctgcaact	ttggccgtac	cactcctacc	540
gaaaagccgg	acaatgatgc	agaataggta	cgtaaaagct	gatcccgggc	atcgtctcct	600
tcgtatcgta	ttcgatctcc	aaatcaaaat	caatgtctcg	agaccttctt	catcctcgtc	660
gtcttctatc	gatgccggaa	caaatctcct	cctcatccca	tgtaagactg	gtcaaatcaa	720
gagcttgggc	tactagctgt	ccggtcgtg	aagggtctcc	ttgctgagtt	ctttccacaa	780
gtatctttag	ctcttccagt	ccctgttggt	ccacggcaga	aatgaaaact	acgggcaagc	840
ctgtcgccag	ctcctcccca	agcatctcgc	acagctcttt	cgcgatgagg	tcgcacttgg	900
ttatggccag	cactttgcgc	ttttgtgcca	atcttcgttg	tatgccacca	gctcccgact	960
gagtatctcg	tattccttgg	aatgttgtcc	gtatcggccg	gaatcatgaa	gaggagcaaa	1020
gcgttctctc	gatgtgcgcg	aggaaacgca	gtcccagtc	tttccccgat	gaagcccctc	1080
gatgatgccc	gggatgtccg	ccattacaaa	ggatcgcttg	tctcgatggc	tacgataccg	1140
agattaggtt	ccagcgtagt	gaacggatag	ttggcgtctt	cggttttgca	gcagtgagca	1200
ctgatagcag	tgtcgatttg	ccggcttggg	aaatccgacc	agaccgacat	cggccagcat	1260
cttgagctgc	atgacaccat	acgctcctgt	gccggctcgc	cgggctgagc	atatcggggg	1320
gccgattggt	agcggctctt	aagaacgtat	tgccgtgtcc	gcctcggcct	cc	1372

(2) INFORMATION FOR SEQ ID NO:623

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:623

```

ggctcctcct gccacagca tcacaatccc atagcggccg ggctgatcgg catagcttgg      60
tcggcaggat agggataacc atgatcggaa acggctatat gagtgtattc ttccattgag      120
gagactgctg cataccacgt atatagtgcc aaagcagctg tccgtataga agacgctatt      180
gagatacggg tcaggagatg ctgagaaggg acatcgaatg gttcatggct ggaaagtgtg      240
aggaactgta gaagtaaggt ttcttttctt tctccaatcg ccgacaatcg tccataggcg      300
tgggaaactg atatgatccg gcgtacccca tttgctcaac ctcttttgaa cggaaagctg      360
ctaactccg ttacctcgtc atatccagtg cctataggta gctacggaca tttgtaaagt      420
cagcatctcc tccgtacagg tgtgggtgct atagcccgac ggtgcgcaat gaagcagcta      480
tgcccggcag ttgcgcacct tattggggta t                                     511

```

(2) INFORMATION FOR SEQ ID NO:624

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 739 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...739

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:624

```

tgctcttcat gaaagcattg ccgtagtoga agaagtaaga tccgcgtgca ccagagcttt      60
caccacttcg aaatgacgtt taagtccgag atcgacctac ggcagaattc gtcgcgatcc      120
tctttgagca ggcgtgtacg ctctcgaag agagtgtcac cggacagtag ccgccttcat      180
atacggcatg gcaactgtct gatcggaaag gagatcgata tgaatacctt cgctcaaagc      240
atattgagca ggtctactac attgccatga taggcaatat aacaagggtc gccctcttcc      300
gggcacggc agccatacgg aaagcctctt ctttcgactc ggtcggaact tgacccatcc      360
ctgtccgtga cgggtatcga tacggctact gtcacttcgg ccgttatgct gacggctcct      420

```

gcaatatcgg	cagccttgg	gtgcaccgc	tcataccgcc	gagaccgctg	gtgacgaata	480
gtttgccggc	aaattgcctc	ccgtggggat	attcaatttc	ttgacgaccg	gcattgagcg	540
ggtattggaa	cgtaccggtg	taccgatacc	ttgcggnccg	atatacatca	gccaccggca	600
gtcatctgtc	cataattggc	cacacccatc	tgggcaggat	ctnccaatcc	ttgatatggc	660
atacaagccg	accatcatgg	aagttgtgat	gatcacgcgc	ggagcatcag	gcttggactt	720
gaagagtccc	aaggagacc					739

(2) INFORMATION FOR SEQ ID NO:625

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 480 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...480

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:625

ttgcagtgat	gggtccgagc	ggagctgtag	aagtaatttt	tgccaaagag	tggcagcagc	60
cgagaatcct	caacaagcag	cattggaaaa	ggaagaagat	atcgtcaggc	ttttgccaat	120
ccgtacaatg	cagcctctta	cggctactgg	atgatgtgat	cgagcctcgc	aataactcgtt	180
tccgcattat	togtgccttg	aacagcttcg	tacgaaaaag	caaactatto	cggctaagaa	240
acacgcaatg	tgctcttcta	ataagaggag	tttagtgcac	cgaccatgaa	tattgcaggt	300
ttagccatat	ccttctgact	ttgtttgtca	tagcctccgg	acactctttg	cccagcaggc	360
agcacagctt	cgcttgaatg	aagtgatgac	ccgaatgtgc	gngactatca	ggacagctat	420
ggcaatcata	agccgtggat	taaaatatac	aatcctccan	ccgctacggt	ggatatcaaa	480

(2) INFORMATION FOR SEQ ID NO:626

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 444 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:626

ctggaattgg	ttttactgag	gaaaataaga	attcttttga	tacatacaga	gtggcttcaa	60
aatgtcaaaa	ggaggtaaag	gcttcggtcg	atztatgtcc	taaaataactt	ttatcatgtc	120
tcaattgaaa	gtatcttcta	tgaagaggca	aatataaaca	acgtagtttt	acatttggtc	180
acgcagatga	gataatgaaa	atgagcaa	at	at	at	240
tacagtacag	ttttacatct	ttcttccatt	aagtcttttg	atttagataa	agggttgaag	300
ttattgccag	aaaactcgtg	gagcgtttac	ttgtattctt	tgtcctggag	gggaatatac	360
tccaaagatt	acgattaaag	aagagaatgg	ctcaattcaa	tagtattgaa	taactatatt	420
ggagacaatt	ctgatattca	aaaa				444

(2) INFORMATION FOR SEQ ID NO:627

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:627

ggtgtcgagt	gcaggctctc	cgccactgaa	cgagatataa	agatccacag	cgatattcgc	60
ccgttggcat	cgtagtaaat	ggagtccgtg	gattttotac	cccattggct	tttatgtcac	120
gagcgatata	gcggttggtc	tcacgcagat	aaagttagta	tctgcagact	ggtttgtgga	180
gacggtcgct	gtaagagcca	ctcggcattg	tccttctgcg	cacgattttg	agtcgggaga	240
gagtaactcc	ttcggcaata	tcttctttcg	aaaaagggtt	gtaagaagaa	ttgtcttggt	300
ttggcccacg	gctgcaaaga	aagcaccgaa	gacaatcaaa	gaataatggt	tgtttttttc	360
atttcaataa	tganttatnt	ggattgtatg	actaagacgg	attcgacaat	cgacccaatc	420
tctcttggtg	aatttt					436

(2) INFORMATION FOR SEQ ID NO:628

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 456 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...456

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:628

```

tgcaaaaata tcctttaccg gctaaaactc agataaaatg tgtttttcat gcaaggatat      60
gcgccactga cctgtcgaaa agagcgtgac aactactcaa attgaacgta agcataatca      120
ttcgggtgcg tgcccgactg atagactggg atagatcaac ttataatcat ccaaaagatc      180
aggacgctcg tgtgtgtaac atcgggaaaa ccaaagctaa agcgcagttc ggggcacaat      240
ttgaaaaagg caggtaaaaa tcgcatccga gaccgatctg caccocgtaa tcgtcgcttt      300
ggtataaatc tccaaccctt tctttcgccc cagctccata gtcagtaagg cccgccgatg      360
aggtattgga cgcataattg gttcaagcgc cggaaccata ttttcaataa ttagcgga    420
ttccaaatat ttggatccga acggagaaaa gaaggc                                456

```

(2) INFORMATION FOR SEQ ID NO:629

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 545 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...545

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:629

```

gcgcatattg aaacctgtaa taactttcca tgccaagacg acagatgaat ttatgaaagg      60
ctcagacttt tcgattggac gaccgttatt tcacgggaca aactttctcc attgattccg      120
tcgtttattc cgattcggtc aagaacatca gtatataagt tatcgtagca aagatgcttt      180
ggtggatttc ttcagtatcg tgaggggcaa cgtccctctg tccggctctc caatcccgat      240
atthttctgaa catacatgtg tcgcacgagg aagtaaccct gtcgctcgat agttgggcca      300
tagtctgcac aagcgaggct atcgtgtggc cgaaacgact gctctctaaa tgagggtgtg      360
gctgccggtg tcttgctcaa agcccgggtg ggcggtagta cggatttgat ccgatactat      420
gtgtggatcc cggaaccggt ctgatcgaag ctgccctgat tgcagccaa tattgcttcc      480
ggtatctata gcgaggcttt gcttttcagc ggtgggccgg atttcgaatc ttcgatctaa      540
tgatg                                           545

```

(2) INFORMATION FOR SEQ ID NO:630

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 583 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...583

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:630

gtgagaacgt	ctttagacca	aaccaccgga	tagttgctgc	taccgcccga	acttcagcca	60
ttaccagcc	caaagatatt	acatcgccg	cagtagctct	gtagatagag	caaaggctac	120
gggtgtacgg	atctcatcag	ggctgtccta	ttgaactgta	ctgtaatcgt	actatgttca	180
taagaattca	gatctggaca	aagctgttgg	ggacgatact	gagcttgcct	tcgttattat	240
ctacctgact	acgacattgt	tcgggtctgt	cgtattttact	ttaatgctat	tgactatcct	300
ccctgtgcat	gccgtaccgg	ctcccactgt	tcgggtgcctg	tgcacgataa	agtaggggtga	360
tggtgttgat	tccttgtgac	aactgattag	gtccaatgag	aaactctcgg	gatgctctcc	420
gtatccgtac	caagagatat	tatagatgaa	agttttcacc	tctatgactt	ctncgtcagc	480
cttggttcaa	ctgtatccga	ggccaagatt	tgattgctct	tcaacctgta	ttataatatg	540
aaatacccta	cgttcaaata	cggattcact	tttatactcg	gct		583

(2) INFORMATION FOR SEQ ID NO:631

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 464 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:631

agggatatat	atttgcagct	gtaacttttt	ttttcgacag	aaccaattaa	aagagatcgg	60
agcgcgagat	ggtaagaaat	ccggaagaag	tactcgaaaag	acctacagca	tggctgcaag	120
caaatatgcc	aagacatggg	atcagatttt	tggttgggca	tcatggccgg	agcatacatt	180
gctatcggag	gcttttgtcc	ctggttggtc	gtaaagggtt	tcccagagatg	gccgaagcca	240
atccgggttg	gccaaactgc	tgagtggggc	gatgttcccc	gtcggcttga	ttctgtggtg	300
ctcaccggag	ccgagttatt	caccagcaat	aatgccgtac	tgatcctgcc	gctatcaaaa	360
gtcgattcc	gcgtctcttc	ccactcaagc	tcggatgggtg	gtctatgtgg	ccaactttat	420
cgggtgctttc	ctttttacct	attccttgtc	catttggccg	gctt		464

(2) INFORMATION FOR SEQ ID NO:632

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 392 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:632

ggtcgcagaa ataactaata ccacacctct tacgcagata atgaaggtaa aggagtgagc	60
tcttcccata cgggcaattt gggtcttacg atactgccaa agacggttgc tactgtgaga	120
tcaaattccc tatggtcacg ttaaacctct tccttcgaat tactggatcg gaggaactgt	180
aggtaagcct aacgaaggaa agagccgaac aactggacca atgaccaagt tcccgatgcg	240
gcagagatgt tgaattcgcc actgagggtga ataacccgac tgatccgaat aatcgaagtc	300
gggtcctgcn aaggagaacc tgcattctgga cgatntacac nagatggcac agncggtcgc	360
gttatcggca accttgatca atgactcttg ac	392

(2) INFORMATION FOR SEQ ID NO:633

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 474 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:633

ggcttgctg tggtatgagtt cgggactgaa ccacatacgg ctctcttttt cgtggacagt	60
gtgcggtggt caaggaaaatg cagaaaaggca ggtatttctc cttcaccctt tgcaggaaat	120
ccgtgtcgtc cctctctatc ctccctatct tcttacccaa tagcgcgctc cccctgcgtc	180
gatgatgacg ggcagggttc gttgttggag catagtacaa acttggcaaa gaacgaaatc	240
tgtcctgtc cttatcctcc gcctccacct tgtaggaaag ggtggtgctg aggtcttgag	300
ccgctcgctg tctccctgc ggtcgagaag cacctngtcc acgggatgag cagtttccca	360
gcctagtcgg agttgaactg acttcgaaag tctcgttggt gttgaagggt acattgctgc	420
ccaagagggc tttgaggaaa gttgagaaat tgtgctnttg cccgtgttgc gctn	474

(2) INFORMATION FOR SEQ ID NO:634

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 643 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...643

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:634

```

ggctttcttc tccgtaaaat tgcttttcaa agcgactaca gtttggttaa attcaccocg      60
acactgcgaa attgtccgta caaagttgtc agtttttgta gtaatcgagc aacgaacgat      120
ccacttttat cactcgaaag gtctcataaa gacccttgcc ttgatgaaag cggctctatt      180
ttgaagcccc gattgccgaa tagcgtagg aaacgagcaa attctgtgtc cgtaaatacga      240
accatcaaca atggtcggct cggttcattct tgggagggtcg cccacattt ctcttgatcat      300
tactttggat tttaatgggt tgtaattctc tcttctggaa ataaacgtgc taaacacaat      360
tgaaatccat tagagagcgt tcacgataaa atgccaatca agacaacgaa aacttctatc      420
caagaacacc gacttcggag gggtctgccc tctgcaagag caaggggttt gagttaccga      480
aataatttcg gtaacgcaag acataccttg ctatttgac tgacgcaaat aaattcggtc      540
gaagaacgat atgttattct ctcgaaatgt atgttttcaa agccttgaat accgacttat      600
cgtttactgc aaagttacta agcgttgggc ctaaactcct acc                               643

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(2) INFORMATION FOR SEQ ID NO:635

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 476 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...476

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:635

```

ggctgcgaat agcttgtaaa tacgattgat ctcaacacct gcagctttta ctcatthaaa      60
tactggacgg ggthttcata cttcttaaat gcattggtag tgataacctgt gtcaatcgga      120
ctgttttcaa atctgtggca ttcataatgg acgtgcagat aactgactg taaaatgacc      180
ggctttttct gtgctattgt cctgcttttc ttacttgaca tagctatttg ggcaaaaact      240

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tcacgttttt	cttattaata	aaatactggt	ataaatctat	atcaggaata	cgagtgcagc	300
agatttcaat	tgtaacgact	cttttaccat	cttgatcatg	ttatgacctc	tttgacatac	360
tggttggcag	cgttaccttc	caaatatagt	tcatcaagtc	tttcaagagt	gcttttagtg	420
aaatttcgga	caaaatgctt	atgatgaatc	tttttgtaga	gttgcgattc	taataa	476

(2) INFORMATION FOR SEQ ID NO:636

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1019 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1019

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:636

aaggatcggc	agccgggttcg	acggtagctt	actgtttggg	natccggatt	cgatccgac	60
aagtaccatt	tgcttttcga	gcgttttctc	aatccggacg	tatctccatg	cccgatatag	120
acgtcgactt	cgatgatgac	gggcgtgcga	aatactccgc	tgggtgacgg	aaaaatacgg	180
caaggagaga	gtggccacat	catcacctac	ggtacgatgg	ccacaaagag	ttctattaag	240
gatgtgctcg	cgtacagagg	ctgcccttac	tcgaaagcaa	tcgttttagcc	aagccgacca	300
gacaaaattc	ccggagagaa	gaaagtcaat	ctgaagaaag	caacgaattt	gttccagagc	360
tgaagcaagc	atcgctaagc	tccgataagg	tatgcgcgat	accctgaaat	acgcccacaa	420
gctggagggg	aatgtgcgca	aacagggtgtg	catgcctgcg	gtatcatcat	tgggaaaacg	480
gatatcagcg	tgctgttccg	gtcagtagcg	ctcccagcaa	agacacgaag	gaggagctgt	540
ggtcacacaa	tacgaaggct	ctgtcatcga	acagacggga	ctgatcaa	ggacttcctc	600
gggctgaaaa	cgctctcgat	catcaaagaa	gctttggcaa	cataaagcgg	cgccatggca	660
ttgacttgaa	tatagacacg	atcccttcga	cgatcctctt	acataataagc	tatacagcga	720
tggacgtacc	ataggacttt	ccaattcgaa	tccgggtggga	tgcaaaaagta	tcttagggag	780
ctacgccctc	tgcttttcgag	gacttgatag	cgatgaatgc	tctctatcgt	cccgtcccga	840
tggactatat	cccttctttt	atcgcacgca	agcatgggcg	tggcctatcg	attacgacct	900
gcctgagatg	gaagaatatc	tcaaagaaac	tatgggtgtga	cggtgtatca	aggagcaagt	960
catgcttctg	agtcgcaagc	tgccggtttt	acccgaggcc	agagccgatg	aacttcgta	1019

(2) INFORMATION FOR SEQ ID NO:637

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 458 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...458

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:637

tggatgatac	ggctcgcatg	tactccaagc	cgcagttgga	gatctatgcg	atgatgtgaa	60
gtgttcgcat	ggtatgacta	cggggcagct	ggacgacgcg	ctctcttcta	tctgcgtcag	120
cgcggcattc	ctctggctga	agccaagcta	tgtttagcgt	ggcctttacc	gatgatgtag	180
tcaagctggt	tcatatgagc	agcttcgtga	acgtctgcgc	gacattatcg	aacatcggtt	240
ccgcgaggct	gcatgcggtg	tggctcctgc	aatatctgct	actaaaaata	ttttgtctcg	300
tcctacaaaa	gctttacagc	tattaggaca	agaaaagatt	ggntcttata	catcagcaag	360
gaccgtcctt	gctgatggat	ttgtttttcc	ggggagagtc	gagctacgct	ctacaagctc	420
ttcgagttac	gctgtaccgg	gtagctcatc	atcctnta			458

(2) INFORMATION FOR SEQ ID NO:638

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 521 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...521

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:638

ggcgtaaaaa	tcgttataga	accacttacc	acttcaatga	caatacggaa	aggcatcccg	60
cctgatacga	tcatatacgg	tggaacatgg	catggctttt	ttgacctctc	tgcggctatg	120
gggggagagg	ctgaaacccg	acaatggtgc	gtagcgggct	gatgcatacc	gatcatatac	180
attatacggg	gggtgggtata	cccgtcatgg	aggactgggtg	gccgatgcct	tactcggttc	240
tattgccgtg	gcaaaaatgga	taggagcgcac	cagtccaaac	tctaaaataa	aagaagtcca	300
agatcgtgca	ctttttcgat	tcgatggata	tatcccgcct	gtggatatac	tacagtatga	360
tgtttctgcc	cccattgattt	tttcgagtgg	gagttcttca	tcctctttct	tttgttcctt	420
ccgctatcat	cctgctacgc	cgcaaaccgg	actgcgtatt	gtatacgtat	ctctcttttc	480
tctttatttc	actataagaa	gcagcgggtc	tttcgtctgc	t		521

(2) INFORMATION FOR SEQ ID NO:639

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 596 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:639

ggcgagtcgc	caccgactgg	tggcgtttga	tattgcttgc	attgacagct	tctgaatgct	60
tgctgtctca	gcagcctgag	tgaaccggcc	cgcatoctta	cggagaggaa	cagcttccac	120
gcttcctctc	caatggagtt	ggtcagctct	cgatataata	agatccggcc	gaagggtcga	180
taaccttgtc	gaagtgcatt	cctctttgag	caaaagctgc	tggttgcgag	cgatacgtt	240
cggagagtea	tcgctctgct	gataggtgac	atcgaaaggc	aatacggtta	tggatccact	300
ccggctatcg	ctgcagacat	ggtttcggtc	tgtgtgcgca	ggagtttacg	tgtgcacga	360
aaacggctct	gttccacatg	gacgtcgtag	cagctgggtg	atcttggccg	tttcgttctt	420
gtactgatcg	ccatacgagc	cacgatctga	gcccacagcc	agcgagcggc	acggaacttg	480
gctatctcca	gaagtagttg	gatcctatac	cgaagttgaa	cttgatacgt	gaagcgattc	540
ctcngcttg	tagccggcat	cggtcagctt	gtccaacagc	tctgcgcca	agccaa	596

(2) INFORMATION FOR SEQ ID NO:640

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 899 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...899

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:640

gcgctctcga	cggttcttcg	ctgtgatcga	gagcaccgag	agacggtcac	gacactctcg	60
atggcccgc	caatggctcg	cacagtgtct	atcgccctcg	gaagataacg	agtttctgct	120
ctggattacg	ctccagactg	agcagacagg	tagcagctgt	cgcttaaaat	cgtctagttt	180
gggatcgctg	gagtagtgct	ccactgctca	tctagctgg	cgatgagggc	tagatcctga	240
cggagagatc	aatgtattct	ggagcaaagt	cctcacgctg	atactctcta	tttccccttt	300
ctcattcgat	ccagaggagt	tgagcttggt	gatctttttg	cgtgatcctc	ggcacactct	360
tcgaaggaga	acaatttctc	cgtactatcc	catgcttacg	gggattgagc	tctgcattca	420
catctatctg	tgggcagatg	atatgggtatc	gtgctcccac	atatccacca	tattttgggt	480
gtaacgcttg	gatttttgag	cgagaccttg	aaggcggaga	agctactctc	gatgcgttta	540
ccaggccaat	ctgcataatg	cgtgctagct	gatgggagaa	tcgctcggat	ccatgttgcg	600
ccccgagtag	agcttacgcg	tgtctcgtc	tctcaggact	caatagctcg	atatacgtag	660
tagcatagag	aggtagagct	gtcgaatgaa	aattctcttt	cggcgcaatg	cagtccatcg	720
tacgagcgaa	gagttggcaa	ggctcttgct	catacgatac	tcaaagctat	gagggccact	780

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aatccgggaa agtaagttgg tctcaaggta gtacttacgg atgtcggtcg gtggctcttga      840
cgagtatatc tgtaggacgc agtctcttac gcgactagac agcattgagt agttcctac      899

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(2) INFORMATION FOR SEQ ID NO:641

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 588 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:641

```

ggtgaaagtg atatccagca tgagaatata atcgccaatc tgcttaccgg tatggctata      60
ccaagattat caaatgttat gaatccggga gtaactccaa aaacattatt gatgctttca      120
acggaggaat ctcgttggcc aactataggg ccacggaagc gaaacagctt ggggtacgtc      180
tcacttcggc accactatgt gaagcagctt accaacagca accagctacc gtttattttc      240
gacgtgcttg tgtgaatggc gatttcctgt acaacgtacc atgtttcgca gaagcctgat      300
gcgtgcacaa aaagatggta aaccgacagg tactgttgct atctagcgtc tacgatcaac      360
cagtcttggg cttctcctat gcgcgggcag gagagatgaa cgaaattctg tgcgaaaaac      420
acccgaacaa catcaagcgt atttcggagg tgtcaccatg aacggtatgt ttgctatggg      480
gggaaaagta aaaaaggatg gtgagaagat gctcgacaca tggactgtat tcggcgaccc      540
tcgcttgctc gttcgtacac ttgtcccgac caaatgcag gttacggc      588

```

(2) INFORMATION FOR SEQ ID NO:642

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1212 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1212

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:642

```

ggccaatata gaagagcgcg acaggatcga ctccacacgt gccgtttcac tttgagacag      60
gctgaggatg ctttagtgct ggacaattct catatgacat tccgcagcag aaggcatggt      120
tgctggagcg ttttcaggaa gtgaccgttc atgattccaa tagaaataga cagcggatcg      180
ggattttgct tcgggtgggtg aatgctattc gtnatgcccg agaaagcaaa tttggagaaa      240
aagctcgata agcttttactg cctgggcgat attgtacaca atacgctgga ggtcaacggt      300
taggaaagaa aggattggag acgatcgatt acgatgcttt ttccgactgc gtggggcaaa      360
ggtactgttg cgtgcccacg gagaacctcc cgaatctatc ggatggcagg agaaaatggg      420
gtaacgatca tagatgccac cgtcctgttg tactccgctt gcaaaacaaa atcaaatac      480
gatacgaagc acgcgcagcc tcggcgcaca agtcgtcatc tatggcaaaa gagggcatgg      540
gaagtaaacy gtctggctcg gcngaccgaa agaacggctn tcgtcataag agcgaggagg      600
agctggacaa aatagattac acacgtcctg tcattctttt tcccaaacga ccaagagcct      660
ggaggggatc gggcagatca tcgacacatc agcacacgta tgcagccggg tgtaactttc      720
gagcatcacg atacctctgt cgccaagtgg ccaatcgaat cccgcatatc ggagctttcg      780
ccacgcacac gaactggtgt tcttcgtagc cggagagaaa agctccaacg ggaggtactc      840
ttcgggcatt gtctggcagc caatccgcgc aagtatcttt attcctcccc ggaagtcac      900
gtgccggata tgctggttcc tctgccggcc acataggcat ctgctggagg acctctacgc      960
cccgatggca gatggaagag tggcatcgca catcaaggct ctattgtaaa ctccggccgc      1020
accggcaagg gtgcgtatat cctcctttat aatgcacccc ctgatagggt cgattggggc      1080
gatacgcgcc acattgtaag gagcggagtg taccaaataa ggcaggatac attcttgccc      1140
gatccggttc ggtagctgac ccgtgaatcc ggcttcggaa attgcccgac acgggggggc      1200
tcttcaagag ca

```

(2) INFORMATION FOR SEQ ID NO:643

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 482 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...482

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:643

```

agataaannt atatttcgcc ggcaagctat tcttcaacct aaaaagtttt atgacgcagg      60
aatcggaatc ctttttcttc gacaaaattg aagtcaatag gagcaaggag gttctctttt      120
aggtaaaaag actgatgcta cttgctttat aatgtttcat tgcttccggc atatattggc      180
gaatggcagc tatccgttgg catcgctcgg atgcgtactc agaaactcta cccgcccgtt      240
accttggcag ccattctttt ccaaaaagta attgccgnat tcgggttata accgccatcg      300
ccatgaagac aagtcctatt ttgtcggctt catactcctg ttctgattgt agggtagccg      360
taataagcac ttgtgatcca atgccatagg ccgcccgatg accgtttgca gtgctgctga      420
cttgggtggag actgctgcgc cagtatatta ccacccattt ggcgtagata ttcctgactg      480
at

```

(2) INFORMATION FOR SEQ ID NO:644

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 401 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:644

agaccgttcc gattatgaaa gcagctacta ccgtcagccg tataaggatg ttttcatcgt	60
tgttttcggtt tatgcaattt gttcatataa agcctctcat tacagaaaga gcctgtttta	120
gtgagttccc gatagccata atccgtttga ttttgatgat tatcttatcg gcttcggggt	180
tttccaatgc gaataatatg cctgtaaaagc atcgtaagca gtataattct tccaatcttc	240
tcctatttcc ttgccaatcc tctgactttc tcataatcgg gatgatatgc tttgaatcac	300
gcataatcgt gtcggtggca tcttcatcat atccatcgca aaagtatatgt tgttcaaata	360
gctggcatgt tgaatgnaag tcgatacacc caccgaata g	401

(2) INFORMATION FOR SEQ ID NO:645

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 408 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...408

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:645

ggtcgaagct cgtagccact gctacatgct tggcctgatt caaatcgcta acggcacttc	60
ttccggaata accaacacag gtaccttgct cgaatctata cttcggctgc aacgcttccg	120
atcagatccg aatccttgcg cgatttgctc gcgtocccat cacgatcatt acgggtctgt	180
gtcgcttgca gtaactagga ttacatcttc cggagcaccg tccaaaagga cagaggagaa	240
agatattcgg gaagttoctc tcgcgttata ctttcacgca gctctttctt gagctgttca	300
tcagacgttg tacacgctgg tattctttgc gcaggctgac ttcttgctga gctggaacac	360
aagccgtatc gccaccgta agaaggtgtg gaaaaaatgg actgatat	408

(2) INFORMATION FOR SEQ ID NO:646

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 402 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...402

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:646

ctgagtcttg	gagtgggaat	gcttgtcgga	agagaatcgc	ccgacttctt	cccgttttga	60
ggcgatgaac	agcgaactct	cccgtccgat	ctgcgggagg	tttaagaccc	ccttatacac	120
aagggtctct	aataaactgt	gaccggacca	tgagaggagg	agtcgtcctg	acaaaccctc	180
ttgtggatct	ttcttttttc	tatcggett	aatgggtggca	aaacgcaccg	gctcgacatt	240
caggagtcc	ggcgtcggg	atagctcaag	gtcggtttgc	gctccaaaat	tttctgtttg	300
tgacctctaa	aaacgtggtg	cgtaaactgt	ttcgttttgg	cgtggaagtg	aaaaatttac	360
ncaccacgac	gaaaaaaatc	tcgttccgtt	tttcggaaaa	ca		402

(2) INFORMATION FOR SEQ ID NO:647

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 507 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:647

atattggatg	tgcccgtgaa	agatgagaaa	gctgcctgct	ggcatgtctt	tccatcatca	60
cggacatgta	tcagcccaat	ccacagcgaa	tgaaggacgg	atctccatcc	ccaaaagcaa	120
cggttatgag	tcgctccacg	ttacggtatg	ggaccgcaga	atcgggtgggt	ggaggtgcag	180
attcgctccc	gtcgcaggac	gaggtggccg	aaagaggatt	ggctgctcac	tggaagtaca	240
aagggttcaag	agcgagagcg	gattggatga	gttcctcact	tccgtacgcg	agaccttgag	300
gcacgcgata	actcctcgga	cgattcggcg	gagacgggtga	aaacttcaag	atgaacctct	360
tcaccgatga	gatctatgct	ttcactccca	cggagaactg	atcaagttgc	ctcaggggagc	420
ccagtgtgct	ggacttttgc	ttttgcccat	ccattngcgc	atcggctgtc	aggccgctcgg	480
agcttaatgt	aatggaaaaga	atgtgcc				507

(2) INFORMATION FOR SEQ ID NO:648

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 633 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...633

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:648

```

tttcctcgtc aaatcaatgc ttgtgccgat aggcgagaaa taaggaatgt tgtcggctgt      60
ttcttgctcc ctgcatgatg caggacgcga ttgtcagcga ttcttgcttc ctgcacgatg      120
caggacgcga ttgtcaactg attcttgcttc ctgcacgatg caggacgcga ttgtcaactg      180
attcttgctt cctgcagatg caggacgcga ttgtcaactg attcttgctt cctgcacgat      240
gcaggcgcga ttgtcaactg attcttgctt cctgcacgat gcaggacgcg attgcggctg      300
ttcttgctt cctgcacgat gcaggacgcg attgtcaact gatcttgctt cctgcacgat      360
gcaggacgcg attgtcaact gattcttgct cctgcacgat gcaggacgcg attgtcagct      420
gattcttgct ccctgcacga tcaggacgcg attgtcaact gattcttgct tcctgcacga      480
tgcaggacgc attgtcagct gattcttgct tcctgcacga tgcaggacgc cgattgtcac      540
tgattcttgc ttctgcaca atgcangacg cgattgtcag ctgattctgc ttctgcaca      600
atgcaggacg cgattgtcag cttgattctt gct                                     633

```

(2) INFORMATION FOR SEQ ID NO:649

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:649

```

tagcctccga ctgcgatgtc gtaggggagg aagccatagc cgtggaatcc tgccggggat      60
gcgtagtttg tggcctgcag ggaagttggt agcagataac ccggattggc tttcatcagt      120

```


tcctcttcgc	tcaatccata	ttttctgtga	tggagtagag	cgtttcctgt	ggccggataa	180
tgtgttcgct	cggatgagag	cggcggatat	tttgctattg	gcccggaccg	gtttggacgg	240
aatgacagag	tctgcccttc	cttgatccct	tgtctggccg	aagggttgag	cgtaaaatat	300
catcctccga	cagaccgat	tggcgcgcca	gtccataaac	ggttctttgg	cttgcaactac	360
gtgtactttt	gtcctgctac	gcgtctgacc	ggtgccgata	ctacggacat	cagcacacac	420
gtaatcagca	ggatntaaag	acttttatcc	ggaatacatg	atct		464

(2) INFORMATION FOR SEQ ID NO:650

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 417 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...417

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:650

ggccgtgcta	tccagagatt	gccacggcga	gtgagcgtac	cattgttgac	gttgacagaaa	60
cgttttgctg	agccacaccc	ggtagggcga	tattgatcga	ttgtctatac	cggcatagag	120
tacgttcac	atcgtcggag	caacggagcc	attggttcg	taacgaagta	ttcgctttca	180
aagtcacggc	gaatctaacc	ccatcggtac	ccatcatttc	gatatacct	ttgaccggat	240
atgtgccggg	gcacctgccg	tagccgtaaa	taggcccatg	ttntcgggag	aaagagctta	300
ccgtttacaa	atacgtccgg	tctttgcgtg	gtatctacac	tgggaggacg	atattggcct	360
tatatgtatn	gcccgcacatg	acnatttggc	tcgtggaatc	acttnggccg	agatact	417

(2) INFORMATION FOR SEQ ID NO:651

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 705 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...705

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:651

agcctgcgag	cacatngtcg	ttcacattgg	ccaaaggctt	gaagtcccaa	gcttgctgtc	60
atcgagagcg	ggagtataat	cgctcggttt	gaggaagacc	cgcccatctt	gtccaagtcg	120
tgttgcagac	cgtcgtagtt	cttcgaagca	taccggggcc	gagcgttacc	tcaagcatac	180
tgccggtaaa	ctctgctcat	ctcctacgtg	cataccgcga	gtactttcga	aaacctgcac	240
ataagatttt	tgccgatcac	cttgatcacc	tcgctcatca	gcttggtgcc	attgcatcga	300
tgtagcaaat	ttcatttttg	gaaaccggcc	cgtcgacctc	cacgtcacga	ggttggacac	360
aatcccctta	acaactcctt	ttgtagccat	tacttgattt	atttcttttg	atttcttctg	420
aactcgtcca	aagactctgc	gtctcgtggt	tgagagtctt	gacgatgcgg	cggaaagtct	480
cctctcccg	ttttcgtcca	acttcaccca	acgctcgatg	atcgccagct	ccaaataatg	540
cagagcaaac	gctctacggg	gaatacgcg	ttgaataacc	actcttcggc	cactcccaac	600
gaatcacatc	aagcagacgt	tcgcgttggt	aaatgtcgtc	ttctcaccga	cagaaaagag	660
tgtggacaga	tagggcagtt	cttcgccaa	tcgaagtgcg	gagcc		705

(2) INFORMATION FOR SEQ ID NO:652

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 518 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...518

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:652

gggacggatc	tcaaacgcag	tgatatgcaa	atgaggaaag	ttcaatttgc	ttcgatggaa	60
acggatcccg	tacaaaaacc	tatatcccaa	aaggatgagc	tcgggtgcagt	tcgagacaac	120
tgagcgaaac	gagtcggaac	ggcatctcgt	aatcatcttc	gttcgcccgt	tgagcggcat	180
gaaagcactt	tcggacgtcc	gagcggagca	cgactgcaaa	cgaatggccc	gagtagccga	240
gagtacacgc	agttggggcg	ttcgaagtcg	cgatcggtcg	cctctcgcan	ggagacgtgt	300
ccaagcattg	ctcttggggg	tttcccatcc	gagtacctac	ggaatgggat	agtcctcata	360
gcccgtaatc	gagcattcgc	attgcgatag	cgagggggta	tgctcgtggt	cggtcagaat	420
gccgatcttc	tctgcccgc	catcagtgca	cggtcogaac	tcatgccatg	ggcctgccc	480
taagcgatac	atccgcata	cgtggtaccg	gcatacga			518

(2) INFORMATION FOR SEQ ID NO:653

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 833 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...833

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:653

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gccgttcgat aatctccggc gtcagatccg aatatgcata cacaccgggg ccgaaggcgt      60
gcgactgacc tgccgatgta ctattcccat cttcttcaag cgcgcacac agccagagct      120
gccccaccgg atcccaagac gagagctgcg tatgccacgg ctttcggatc agctccaggc      180
tatcggcaaa gcctttacat cgggtattata accgacgaga tggggacgac gaaagcgcgc      240
acgtttaccc gaatcgtatt gacggctccg gtcaattccg cttcctcgtc tatcgatcca      300
gatagcgcac cacctccact ttgtacggcg atgtcacgtt gaaccttgaa gagagggatg      360
gagcgaaagc agactcttca gttgggagag cgctccagag ggaaaagtgc gtagacggca      420
ttgattccct ccgtcttgaa ttggcgttga agaattcggc agacagcgaa tgagccagtg      480
gatagccgat agaccgtact ttttcatttc agtcccatat aaacgggttc cacctccaag      540
aaaggctacg ataatacgtc tcccgaatc cgacagagag catcagggtc ccagttcttc      600
ccgttgaggc atggctgcta tcgattcggg aagatagtat aggccttcgc atcctgtgac      660
aggaaacgac cgacaaccgg tatcactgcg aagcatagaa gttgtagccc tgcttcagg      720
ggaaactcac cggacggaaa gctccagtat catcagagga gcacctcat tgagcacacg      780
atactttcct ccagaccgag cttgatattc tgaaagttgc gcaagccgaa agc          833

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(2) INFORMATION FOR SEQ ID NO:654

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1205 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:654

```

aggctcgttg ggtacgcaaa ggcaggcact atcggtatgg atacaagaac acgtcttgac      60
ggacgagcag ggtttggtag aaacagtggc cagcacctgg ctaattgtgc agacacgggt      120
gtattacctg agctgatcaa gaagtccagt tgccgggagg aattagtgtt ttggccgaca      180
aaggctattg cagcaaaaaga attcggagta tttggcccgt caaggtttga tagatggaat      240
tatgccaagg ctcatcgagg tcaagtcctc aagtgaagtc caaaaacaac tcaacggatg      300
atcagtaaga cgcgctgctt gatagaacgt accttcggta gtatcgacga tggttctgtg      360
gcggacgatg tcgctatcga gagttagcca agcacatacc cggaatatcc ttgaagctat      420
ggcctacaat ctcaagcgta tccggggctt cttgtgcttc aaggcgcaaa ataggcgcta      480
aacgaccgtc ctcgagggca attgccctcg aggtcgggga aaggggacta atccccaagt      540
gcaaaacaga cgagaatggt caaaaacaca ccgggaacaa gcgagcagaa gaacagcctc      600
tttgtgcaat ggtctcaatt tgaatcttga atctctgcaa tatgaattcg tacttgtttt      660
gataattgaa tgtagcaatc atgagcttag atgtacgtta gtggctgaaa tgcgattgcc      720
ctgttacaaa cggaactgata caacattttc cctacttttg cgtagtttc ctatagtaat      780

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aaacacacta	tgtggctttt	ggagaaaagt	catgtaaaag	taatttgacc	gaagctttgt	840
gggatgtttc	gccgagtgat	tcaagaaggc	atacataaag	cctcagtttg	tgtagcatgc	900
natgattnag	agtatctcan	gggtgcaata	gcggtttgac	gccgacaaac	ctcgtgatcg	960
agtgtgcggg	agtgggttat	atgtgaatgt	ctcgtccacc	acttattctg	cctatcaggg	1020
gaagaaagag	gacttatttg	gattacacaa	ctgatccgag	aagatgccca	tttattgttg	1080
gcttttccac	gaaagaagag	cgtacgctct	tcggccaact	cacatcttca	gcggtgtcgg	1140
gcctacgacg	gcacagctca	tcctatcttc	ctatgccctc	aagagctggc	cgcactcatt	1200
accac						1205

(2) INFORMATION FOR SEQ ID NO:655

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 487 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...487

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:655

gtgccctggt	caagcgcggt	ggcagaagcc	tgaaaagtcg	tagtcgtggg	tagtaatagt	60
atztatccag	cagaccggga	aatacaatcg	agggaaacag	aggttcacgg	ccgtattcat	120
gttgtagcaa	tttatatcga	tcagccgttg	ctgctatttt	cgggacgatt	gccggtctcc	180
cactcatacg	atccacgata	ttccaagaaa	gattttctcc	tccgccgaat	acattgcgcc	240
gagcagagca	aaattcagtc	cgggaccgat	gaagtcattg	cttttgctcg	tgaaaaggtc	300
tctaattgatg	catcccaagg	tttgtcgagg	gtggtagca	gtccacatcc	aaaaggccgg	360
aaatggaatc	gcgttgcaaa	aaattgagat	cgtaacggag	aaggctccca	aacgagccaa	420
ggatttgctg	gtcgtctcat	ctctttctgc	cgatacagat	tgccggagaa	agaaacgaaa	480
gcgttttg						487

(2) INFORMATION FOR SEQ ID NO:656

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION: 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:656

```

tcgcgatgca agacgagcag ggcttctatg atttcaagga ggcgattgtg tgcagcctta      60
tcctatgccg catttcacgg ttattgatga tcagacgccg ccctccgtat tgtctctcag      120
gtcgaacagc tgatcgaatg ccttattgag ttatccatct tatcgatcca agcagataca      180
tttacggttt gtacgtggaa gcatgtttat cgcttcgcaa tacctccacc agcttgatca      240
tcagccgggt ttgttccgat agctctttct attcagggtta ttatagggtt tgagagaata      300
aacagacgtc tcgctgcttc gcgatgggtc tcttcggggtc tgtagtctct ccctggatca      360
agcctataaa attccgaaac gctttgctgc gacagcatcg agagcgggta tttctccgca      420
gtattcgctt gtcttggtca tgcaatacct ttttgaaag tagccagcac cttgtccagc      480
tcattccaaag aggaataatc tcatttttac tgaagagtgc gagcatcttt gacctcatca      540
tcataaaatt cagaagctc

```

(2) INFORMATION FOR SEQ ID NO:657

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION: 1...511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:657

```

tgctcgcaaa caaaaccaac tctattcgac actggagcag aaaggattca ccgcccctcc      60
actacgatgt ggacttatga cgatcatatc cgcgacgaat gaacaaagcc atgagcctac      120
tgcgcgaaaa agactacgac tccttcctgc agcatacaaa gagatggcta tcgttctgcg      180
tgacctgatg gaaaaaaaga gcttatecct tatccaacct ctctgaagct catttccgac      240
aaagattcga agaaatgaaa catggcgatc gggaaatagg cttcttcctt atcgcatgcc      300
ggaattagat gcaccggcca agcaatcaaa agaagcccac ggcaatcatt tatggcagaa      360
ctgggagcct tacttgccaa acatgggatg ggacaggcgg acaagacgac caggcgatac      420
tggatgtaag cccgaaggaa acttgacttt tggagccaga tcaatctgct tttccgtcat      480
cttctgtggt tatttcgntc gtggaccgaa a

```

(2) INFORMATION FOR SEQ ID NO:658

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 471 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...471

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:658

agaaattcaa	gaacacagta	aaaaatatca	agagatgaat	tttccaatca	tgaaaaactg	60
attcgtgaaa	agcaaaacga	actgcacatc	aaagacctgg	catggcttcg	atccgagatc	120
tggtagcttt	ggtgaccaat	ctggaaaggc	taccggcact	aaattctgcc	gtatggaaat	180
gggtgtgccc	ggacttctgc	acctcagatc	ggtatagaga	cggagataca	aaagctacgc	240
gaagggtagc	ttcgatttat	cccaatttgg	atggctctgcc	cgaactcaag	caggggcac	300
gcgctttgcc	aaactctttg	tcaatatccn	acataccggc	acggcttgcg	tgcttacggt	360
aggctcgatg	cagggatgct	tcgtatcttt	cccgtggcca	atcgcacaca	caaaaaccgt	420
gaatacggta	cgtctcttta	tgaccccggy	ttcaaatctg	aacaagctac	a	471

(2) INFORMATION FOR SEQ ID NO:659

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 559 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:659

gggtcttctt	catagcaggc	aggtagagcc	atttgtcatc	atccttacca	tctgatcata	60
atcccatgtg	aggaaaccgg	tgcccttgac	atcgcccgat	agaggaaaaa	cataatagtc	120
ttcttgtctt	tcttatcctt	acccatgcaa	tggagttaga	aatgagtttg	cgctcacgta	180
cggtcctctg	tttattatga	gcttcatagt	gagttcggag	cgacgcgtat	caccgtcggg	240
gcggttttta	cgcgctgtgc	tatgtcgcgc	cctgtctggg	cgtagatgct	gaaaagacca	300
ttgctaccat	ggctgtcatg	agggtggtct	ttgccaatcg	tttatcgttt	tctgtttttg	360
ttagctgttc	tatatattagt	cttcccatc	ttcaggaagg	caaaaatgta	caggcatatg	420
cctaatacgg	aaccgtgttc	ggagagattg	gtctgccgtc	ttttttgaaa	ccgatacggc	480
aaaatcttct	tcccgaatat	tnggaatcgt	cggaacaggg	agtggcgtga	tgcaagaagt	540
gccaaaaggg	ctgtgaaca					559

(2) INFORMATION FOR SEQ ID NO:660

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 826 base pairs

(B) TYPE: nucleic acid

(C) STRANDE S: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...826

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:660

actgcactga aagactcgcc atacagatct cgtcccgatt ctttgggcga tacaatttcc	60
tgttcatgga gcatcagctc atcgtagtag tcgatcaagc ctcggccgac gcacctccac	120
ccgtatattg ggacatctgc aaagggtgtcc ggcagcatcc gacaggaagt agtagccatg	180
cgtactgtat gtattcccgat atgctccatg gtgggttttgg ccggattgta gaacctatgtc	240
accggcccac ggcataagaa atacagcgca tttgccctga cggagtaccg gtacggaggc	300
aaatcgtctg togtgatccg gctcagatct tcgggaagca cctccacca taaccgaaca	360
cacctacctt ggacggatcg gagaagccat tgcacggagc tgttcgtccg taaggcgata	420
cactccactt gcatcgacac gatcttgacc caatgtcccg aagccattag cgaacggtcg	480
gccgtcttcc catagctcgt tgcgctttcg caggcaaagc aagggcaagg aagagagaag	540
gaatgcgact attggaagta ttcgtttcat ctgagaaata gcttatttat ggatatgtcg	600
agcagttttt gctcttcgag ataggcttcg aggtgctccc gatagcaatg gggcctaccc	660
ctgccggagt cctgttaaag ataagacccc catacgaagt gtgaagaaac gactggcata	720
agcgatcaaa cgatcacgga aaagagcata tcccgtgtat tgccctgctg caccgtgcgt	780
nccgctatat ccaatcgag gcccaattcc tgcacaccgt gcccg	826

(2) INFORMATION FOR SEQ ID NO:661

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 922 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...922

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:661

atatcatccc gatacgcaac ttatggtgaa tgcggaacgg aattgattcg acacactcca	60
ccatattagg atcttatccc aaaacgaaaa agcctccgct ctccctaaca aggtgagtcg	120
gaggcttttt agtatccgtt agctaagctt acttcagcgt accttgcgtg gcttgttcga	180
tcatcttggc attcggaaga tataaacctc cacacggcgg ttggccgaac gtccggcaac	240
tgtgcattgt ctgcaaccgg ttcattggctc ccacgccctt cggctgccat gcgcacatac	300

tcacaccctg	agaattcagg	aaagaatata	cgctggctgc	acgctctcag	acagaggatc	360
gttgatcttg	toggagccgg	tattgtccgt	atgcctacga	tacgaatata	cgtgtcgggg	420
tttttgttca	tgtttgccgc	aacttcgtca	gcgcagtgcg	tgagttggga	ctcagagtgc	480
tggagttcgt	gcaaagagga	taccgctata	gaaagtaacc	agaatagcct	ctccgtcatt	540
actgtctgaa	tcgtagcaco	gggtactgcg	gcctccagtt	cttttttcgc	ttgtccatct	600
tctttccgat	gagagcaccg	gctgctccac	cgactgcgta	ccgacgatgg	caccgacagc	660
cgtattttccg	gctacgttac	ctactcggca	ccaatggcac	ctcctactcc	ggcgccgata	720
aggccgcctt	ttgcctattg	ttcagtcocg	aaccggcgaa	cacgagagcc	acggggcaaaa	780
ctgagctact	acacttgatt	tcttcattgg	ctcttctttt	ntattcggtt	acaacgatgc	840
tttggttcaca	caaagctata	ccgtggaggg	atcaattata	ttattggcaa	agtacttcat	900
aaactgcata	cgctcgtaca	tc				922

(2) INFORMATION FOR SEQ ID NO:662

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1161 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1161

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:662

ccaagatgag	atcaaaagca	actatgcgga	cacgaaaggc	ggattggaaa	gcagcgaatg	60
atatacgcga	tcatcaagag	gatcatcgac	caaagtatcc	acgcgaagta	atcgacaaga	120
cggactttca	atgggatccc	ctgagcatat	gctctacgac	ccggccggca	ctgctatccg	180
aggtoatgcc	gaaccatac	gcgatatgaa	tatttccttg	ccaatttccg	tgcgatgcaa	240
gcacagatgc	atacatgccg	catcagccga	accagatcct	gcgtgcattc	gaggagagat	300
ggagattccg	caagaagacg	tcaaacagct	attcgaaaca	ctgtctcctc	tccacaggta	360
aagaaggtgg	ctcaactgat	cagcaaacga	ttggacgccc	gttggagccg	ttcgacatct	420
ggtacaacgg	ctttcgctcg	cgctcgggat	gccagagagc	gaattggaca	aaatcaccgc	480
agctaaatat	ctacaccoga	agcactcaaa	gccgatctgc	cgaacatcct	gcgcaagctg	540
gattcgaaaag	caaagatgcc	gagcggatag	cttcttttgt	gatggtggtc	cttcgcgagg	600
tgccggccat	gctgcaggct	cgatgatgcg	caatgacttg	ctcgcctgcg	cacacgtatc	660
gccgatacgg	ggatggacta	caaaggtaga	atatagccgt	acacgaattc	ggacacaata	720
cggagcaaac	catcagatga	acgatgtgga	ctactacatg	ctcaacgggtg	tgccgaacac	780
atcctcaccg	aagccgtcgc	tttctctctc	cagaagcggg	atctcgaact	cctggtgtca	840
gcaagcccga	tgcacagaag	gagtacaacg	aggctctgac	cacttttgga	attgctacga	900
gatcatgggc	gtatccctcg	tagacatggc	ctttgggaat	ggatgtacac	gcatacctgaa	960
gccgatgcac	acgagctgaa	ctcgcgggtc	tggacgcggc	caaaaccgtt	tggaaacaagt	1020
actacgccgc	attctcggag	aaaaggacga	gaccattctg	ggcatctatt	cgcataatgtc	1080
aattatccgc	tctacctgcc	caattatccg	atggggcata	tcatacgattt	cagatcgaac	1140
agtagatcaa	gggcaaatcc	t				1161

(2) INFORMATION FOR SEQ ID NO:663

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 462 base pairs

(B) TYPE: leic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...462

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:663

gaggggtttcg tatatcatcc caatgagaag aaacgcgac	tgatgcggcg atggaagcgg	60
cactatacag catgcgtccg aaggccgaga aagagttcat	ccgtccatta tcaggaaagc	120
tcgctggact acactcaaat aaatatcgaa acggcttacc	gacaacacac gaagattcaa	180
tgcaatggag aataaaagct gaaagtggcc atttcccatg	gcgacatcaa tggatttggg	240
tatgaattct gcttaagacc ttgcccgaag cctcgatact	ggatctcttc acgctgtcat	300
atacggatcc gccaaagtgg cagcctatta caggaagacc	ttgagttgga ttggaaagt	360
tggaaccaag tatcctcggc aaccggaagc cgtagagggc	agaagtgaat ctggtaaact	420
gcatacccgga agacgccaaa ggggaagatg ggccgtttgc	tc	462

(2) INFORMATION FOR SEQ ID NO:664

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 574 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:664

ggctcagtc	ggacaggaga	aggccaaaga	gggaggggct	ttcgatcagc	cattgtcaaa	60
gggcgaaagg	ccatccacct	gcacagtatt	cgtaccaacc	ggagcgtaag	caagggttggc	120
agagcgatcc	caaagccgta	gctttccgaa	caaaagagaa	tacaaccgct	ttctgcacaa	180
tgcttgatg	ctcgtggcaa	atcgcagttc	tataatgccg	atttcctgca	ggcgcaggct	240
acatttctta	tatcgcacgc	ttatacagcg	acgaaccgat	aatccgcgat	gaagccgtct	300
ttggcaggta	cgctgctaca	gtgagatggg	gtggctgcat	gaagggagcg	tttgctcgag	360
cgcattcccta	aagatcttcc	gcatgtcgat	cgagagggtt	gtattctttg	gcagtggcag	420
agcgttcgat	cctgtcgggt	gcaagcgcg	ggccatacct	tatctccaac	aggcagcaag	480
acaagagaaa	acaagcgaca	acgcgctcgt	atgtattatc	tgctcggaca	gctttttacag	540
aaaacaatcg	gccggaggag	gctcgcgaag	ccta			574

(2) INFORMATION FOR SEQ ID NO:665

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 654 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...654

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:665

```

gggcagatag tcgttggaacg taccctcgcc gcgtatggca gctatgggac gaggtaacgc      60
cccaaagcat tttccagttt caggcctccg catttgccag aaagatcaca gccttggggg      120
gtatagccca gagcaagtcc atgatggagc cgcattggca ctacccatgc cgaagttgat      180
gaggggtgacg ccttcgccga agcattcgcc atggagggtat gttctccgac gatagggtacc      240
ccgtatgctc ggcgaagaca tgcagatagt gcgaaaagtt cgtcagcagg atgtcgggttc      300
gaaatcgatc agctgcctct gcgtatatcg cggttaaccag ttccaactat ctcttgcttc      360
gttttcatga aaacagacct atatttgtaa catcggtcca aaaattctaa gattcggggag      420
cgaagcaaag ataggatgat taactaaacc ttccccctta cgaacatcgt attcaccaag      480
aagatgagtc atgttcattt tcgacagcat tcggcgctgc tatgtgggctc tgacgccggg      540
gagtgggtgc gccagcaact tgtccattat ctgaccgatg tactggggcac ccggccgatc      600
tgatccgcaa cgaagcacag ctacgaatag accggcgaga aaacgctgcg atac          654

```

(2) INFORMATION FOR SEQ ID NO:666

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 508 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...508

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:666

```

ggctcttgccg agaaagcggg ggagatgaag ctcgtggatg agctgggcttc cgtaccgatg      60

```

tgagagaaaga	actcaa	atgtcccaac	gaggagagaa	gatgaacttc	ggttcgtatc	120
gctttctcag	gttctggcca	atggcccatg	aacaaaacga	aaggcagtcg	gatcgccgtt	180
ctctttgccc	aaggtgaata	acggaagaaa	taataataga	angccgttcg	acactgacgg	240
tagctcatca	cacaagaact	cgccaaagaa	atcaaggcag	cagccgatga	cgatatatca	300
aagccgtagt	acttcgtgtc	aattctccgg	gaggtagtgc	tttacttccg	aacagatatg	360
gaagcaggtg	gccgatctca	aggccaaaaa	gctatcgtgg	tctccatggg	cgacgtagca	420
gcctcgggcg	gatactacat	acctgcgcag	ccaacagtat	cgtggcagag	catacgactc	480
tgaccggcct	atcgccatat	tcggcatg				508

(2) INFORMATION FOR SEQ ID NO:667

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:667

cgtgtctttc	cattcagata	aaatcaaaga	ggcgaaagag	gatttggtg	cttcgagaaa	60
cgagtggaac	gggatgcaga	gggacttcca	atcaacaact	cacaattaag	ggtgtagaag	120
gaagtacgga	catcaagggt	attgctgtcg	cttgccaggag	atcgaggaga	aagcacgcac	180
caaggggtgaa	tacaataaat	cggtgagatt	tatggctttt	ccatcatggt	caagacggaa	240
aactctcaaa	gagttgttcg	actgctcctc	caaccgcttt	tcgtgaaagg	gcanagagca	300
tctactatac	ctacaataac	gggaagttgg	cttctgatcc	caacttgctt	gtcagaactt	360
tatcaatgct	ctcgagcgta	ttccaaaggt	gatgaatcac	accgagaaa	ataaggaaaa	420
ggtttctgca	aacaaggagg	ttatatgacc	attgcggtg	ggtcgtggaa	gaaagaggac	480
gagcttcgct	tctcaaagga	caggcagccc	gaactgggat	agaaaaattg	cactcacgcc	540
gcacctcccc	gaggaagaga	aagaaa				566

(2) INFORMATION FOR SEQ ID NO:668

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1212 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1212

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:668

```

tcagaagaga attttatcta tctctatttg caaaagaaaa agccaacatt atagaagaag      60
aaaatttgat attttggact aaaggatttg ttgcaggcta aataaagact ttataagtgc      120
atctcatatc ctaatgccat atttagacat gcgttgcgta atattgctga aatcaagaaa      180
ggaaacataa ctacttagag aaaaaacgac aagaggctcc ttcttttaggt gtaattttcc      240
ctatgttcaa ggtgtaattg aagaagaaat actgtatgaa atagaatcct ttctaatacat      300
gggatagatg tcaatttttag gaataattta tctcatggac ttcaaccctt tttgaaattg      360
aaaaatatgg gattttatttg tggtagatat gctaaaacta tattttgaag aaaagaatat      420
gataaaaatc gctccctaaa ttataaaaaga gataaagaat tactagcctt acggcctctg      480
cgaggctttt aaaaccagat gaaagtgaat aactttgcat tttggcatca aaattcttgt      540
gaatccaccc taagtgtgca aaatatctct gtaatcttat ccttgggtatc atatgggtgtg      600
taattcgtta tttttcaaga ccaaaacaca caaagtaccc tgtaattccc aacttctata      660
agacttttct tatcctgaac tcacgtattc tttaatgcga agcaaaaagt gtccgaaaga      720
aattttgttt ccgtaataaa agattcctgc aaagctgcat agtcgttctt ccaatccttt      780
atacttctac aggaggataa aactctattt ttccggataa tctttatcac agtagcatag      840
agaaccggac ttacaagacc gaaaagcgta tatactccga atcatcgaca gaaatacaaa      900
aacaagtcgt cattttccac cgataagaac gcattttaca aagaacaggg acgagcctgc      960
cattttgccg gggacgacgt tcgttccggg taggacgacc ctccgtctgt tttaggtcga      1020
cctgactttt gtcagggctg gcgtgtgtgg tttattgtct cgtaatgtgc aggtaagaga      1080
gggttaagag tcgatatttc gggaacggat aatctttccg gatttcgcct cggnatgcgt      1140
tccgatatat aatctcccng gggatggcat gacnggcaac agtcttctga aaaccgcac      1200
atctctgcgc tt                                     1212

```

(2) INFORMATION FOR SEQ ID NO:669

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 477 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...477

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:669

```

ggccgaactc gtagaaaacc cctctatctt gggttgtctc attgtaaagg tggagatgcc      60
gatggactga ttgccggcgc acagaatact accggcgagt acttcgtccg gctcttcaag      120
tcatcaagac agctccgggc atgactacgt gagcgggtact ttcttactct tcaccaaaagc      180
caaagaatat ggcaaaacgg acttttgctt gttgcagact gtgctgttat acccaatccg      240
acagcgatga gttggcacag atcgtctgtc ctacggctcg tacggcgaaa gccatgccga      300
tattgaaccg cgtgtagcta tgttgagctt ctctacgaaa ggctgcaaaa acatgaaatg      360
acagataagg tcgtagaagc tactcgtatg gccaaagaaat ggctcctgat ttgntgatcg      420
atggcgaaaat gcaagcccga tcagcttttg tagaaaagagt ggcagcactc aaagctc      477

```

(2) INFORMATION FOR SEQ ID NO:670

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 544 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:670

gatcgccagga	tcagattatc	cccgatgaagt	tgagtgattt	aagacggata	caaaagagtt	60
tatcgccaac	cccacgaatc	gtgccgatct	tcccgagagg	aaaagcgcga	ggtagtaggg	120
cttggtacca	tggaactggt	tacttctctt	atgctatttc	gatcaaaaat	cagatcgaga	180
ccagctatca	gatgtaatca	gtgtacaaaa	tgaactcatt	gctgcatata	acgaagtgtg	240
ggacgatttg	ctcaaaagta	tttccacaaa	ccatacaagg	agcttactcc	ttccagcaga	300
aggctgtttt	agaagcatat	ccgntgcaca	tttcagaaat	gccttgtcta	atctcaagta	360
aagaataagg	aacaaaatgg	gaaagtttaa	taatccggcg	ggcgtgaaat	gcccgaactc	420
aatacctcgt	ctttgcctga	ctgggttttg	cgttcctctt	ctttatcatg	atggtaacga	480
caattcgtga	gtgacgcca	aggtgtcgta	taataacctn	cctaaagcga	ctgaattgac	540
aagc						544

(2) INFORMATION FOR SEQ ID NO:671

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 850 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...850

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:671

gcaaaaaaact	gcagagaaag	ttaggcccta	tctccatagc	cactccggag	ctctcttgaa	60
tgcgcatgaa	atgctgagag	acaagatgca	ctacttcacg	agcagacgca	atgcagtgtg	120
ggtatttttta	ttcatcgtgg	attcaagatg	cgggtaagggt	cttgctcctg	atggagaatg	180
aagggtgacga	agaactctcg	cttatgctcg	ttcgttggct	cgcaacaatg	gcagtgtgct	240

cgatgactac	ccgagaccga	tggtttaccg	ccgactctat	ccatgggaga	aaacgactga	300
aagccggatt	gccatcgaca	atcaatatca	gcagctacca	cttatgctcg	tcagctaccg	360
ctattggttg	cgctttgccc	gtgagtgtcc	gatgtgatcg	agcacttgcc	ctctaccatc	420
attatccatc	atcgaaatga	cgctcttcga	cattgaaagc	tgcaatgata	tgagaataat	480
cgaacaagat	cttggtcgcg	cccatatgaa	tcagtaatag	aaagcagact	gaagtatgcc	540
gcaaacgaga	gacggatttg	accggaggaa	gatccggagg	attgagcgct	tcgccaatgg	600
acatctctat	tacggctctc	atcaggacgg	ggattcgggg	tgattcgtga	gttcgcgccc	660
gaagccacgg	ccgtatatct	gatcgggaac	tttcgcgctg	gcgtagattg	cacagtttctg	720
gtttgcgcct	gtggagaagc	gggttcattg	gaattgcgac	tttcatgccg	actgcttccg	780
catgctctcg	ctacaggctc	ttcttcgaat	ggcccgggtg	cgaaggagag	aggtaccggc	840
ttggtgcaac						850

(2) INFORMATION FOR SEQ ID NO:672

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 358 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...358

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:672

gccagttcgt	tttccaactg	attgcgcact	tcatttgctt	tccgctgact	tcgtaaacgt	60
ttttgcgtaa	ctcttcctcg	ctttcacggt	gacaggtcga	caggtgcggt	ccatgtgtgc	120
caaaggactc	gtgatgtgat	gatcactaac	ttcactcctc	cttcgcttat	gtatggcata	180
tggcaatcgg	cgcacgcaca	cctcgcgtgg	catggattcc	gtgttgagag	atctcgaagt	240
ccggagctgt	gctttcacaa	tgggggcgcg	gctcagggtg	tgaatataat	cgtatactca	300
gcttcacgt	aatatcgttc	tgcatcctcc	attgtcattc	cttatcccat	gggaaagt	358

(2) INFORMATION FOR SEQ ID NO:673

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:673

gggcaaaaaa	cggatctttc	tctacaaca	tcttcgtata	acaagtatac	tgaaagctga	60
tgttatctac	tgaacacttc	ctcctctttg	cttctatttc	ctatttgcag	gtattatggc	120
cggaaagggtg	ggctatcggt	tgggtatcct	acccttttga	tctttctctt	caccgggatg	180
ctcttcggag	tggtatgattc	ggttttcagt	tttctaaatg	cccgatgtgg	gcacaagtcg	240
gtaggatcat	cgctctctcc	attattctct	tcaccgggtg	tatggatacg	cggacagaaa	300
ggtgcgtccg	gtcattgccc	agggacttac	gctgtctact	ttggtgtctt	gctgacagct	360
cttctatccg	ggttctttat	cttttggtg	agggttcgga	ctttggccct	tacccgttcg	420
ctctttctac	ctctttgctg	cggctgccac	gatggccagt	acnccgactcg	gcttcgggat	480
tcgccatcct	cgttcgcaaa	agatgcagct	caaagagaat	ctggctcccc	acactggagt	540
ggagagcggt	agtaacgacc	cccatggcgt	atatgctgac	catcgacca	tcgatttcat	600
caccaccg						608

(2) INFORMATION FOR SEQ ID NO:674

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 475 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...475

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:674

gagctgggtct	tcgatacggg	catccagcgc	aacatcaaac	taagcgaggc	cccagccacg	60
gtattccggc	actgctctac	gatgccgata	gccgcggacg	gtcaatcata	tcgagctggc	120
ggccgagctg	atcaaaaagc	acaaacaaaa	ggagcctgac	tctcatatga	agcatacgaa	180
gaaaacgctc	ggtcgtgcct	ggactccctc	ctcgatgcgg	aggatcatagg	gtctttcttc	240
atcaggaagt	ggccatcagc	gatataatcc	ccaatcccga	tcaaccgcgc	cggatttcga	300
ggaggagtc	ctgaaagaac	tggccgcttc	gctccgttcg	atagattggg	acagcccac	360
acactactga	agaagtccgn	cggcgactat	atatcatctn	cggagaacgc	cgcttggcgt	420
gcggcccga	tggccgggat	gccaccctgn	cggcatacat	caagacggaa	gagga	475

(2) INFORMATION FOR SEQ ID NO:675

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 729 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...729

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:675

cgaagaagat	ctgcaagccg	gcgaggacta	ccaatatgcc	gtggagggcg	caggctcgtc	60
atggaacggc	agcggcagga	ttcgctctac	agggggatca	ggtgcggcag	atggaggaga	120
gcctccataa	tatgcgtgcg	aatctgggat	ggtgcgcgcc	cgtgtggaag	acctgaacgt	180
gaaggcaccg	gocgacgtca	gttggggcgt	ttggacgtgg	agatagggca	gacggtagga	240
gccggagtcg	catcggaacg	atcaacgtcc	tgtccgacta	caaggtggag	gctagataga	300
cgagcactat	atcgatcggg	tcaaagccgg	tctggccgct	tcgtcgaacg	gcagggcagg	360
gactttctccc	ttcgcggttcg	gaaggtatac	ccgaagttcg	ggacaagcag	ttccgcaccg	420
acttcatatt	cgacggagag	caccgcgaca	tatccgcaca	ggccaaactt	actacatcaa	480
tctgcgcctc	gacagccgtc	cgaagccatc	atgatcccg	gcggagcctt	ctatcagaaa	540
ccggcggaacg	atggatatcc	gtcggttacg	ccgacggcaa	gcgagccgtc	gccgggacat	600
cacgattgcc	cgtcagaatc	cgcagtatta	cgaagttcct	ccggcctgca	ttgccgncga	660
gatggtcatc	acctttcgta	tgatattccg	cgatgcataa	gaaattatcc	tgaatgaccc	720
acctatagc						729

(2) INFORMATION FOR SEQ ID NO:676

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 561 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...561

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:676

gcgtcgggca	tttatcaaac	ggcttctaaa	aacacagact	gatatggcgc	ggcagtagcc	60
gatagcagta	ttttttgaga	aagcgaccgg	aaagggaaga	actttttggc	cgcttttccg	120
ttttataag	caagtagaac	aagaataact	caaacgaaac	aagatgaaaa	agaacatttg	180
ctcgaaaagc	attctctggc	ttctctgctc	ctcctctcag	tcgggacaat	gactgcatcc	240
tgtactccaa	gaatgacact	cgtcaagaag	aaaccgtctc	tgccgatagc	aaggagagaa	300
agatggcaaa	atcatccata	tcacggctga	atacatgcgc	gaaacatata	tgattacaca	360
gccaatcccc	aagaatgggt	ctataaaggt	gaaagcctgc	tattatcgac	ttctatgccg	420
actggtgtgg	cccggtgccg	acctttcgcc	caaattggaa	gaggtggcca	agaaatatgc	480
cggtaaaactc	ccgtctacaa	agtcgatgtg	gacaaagaaa	aagagttggc	agggattttg	540
gngtcagaag	tattccgatg	g				561

(2) INFORMATION FOR SEQ ID NO:677

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:677

```

gctgtcggaagggtgcaataaaaacgaaagaaagatgaagaaaaaaagcttttctctctc      60
tccctctgcttcgcctccctgggtccgactccatggaggagggtttcggaacagcaggttg      120
ccgccgcgga tccatccctttgtcccccacggaagccatcggttggcacgaaagcagag      180
cgtggatgca gccgtgcaactgcaagagcttcgagcggcctactggcagtggcgcacctat      240
cgggcgaattgctgcccggagtgaacttgcagccacactgccgactacaggctgccta      300
ttcgtctctatcagcagccggacggctcttcagcttcgtcgcaccaatgctctgcgcctg      360
tcaggacatatatccgtggatcagaatatagtcttacgggtggcaagctctctttggtga      420
gttcgctcga gcatatcaatcgctcggnacgga                                     453

```

(2) INFORMATION FOR SEQ ID NO:678

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 405 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...405

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:678

```

cgacacaaac tcattagtgt ggtatagccg ccatagctcc acccccatag ccgatacgag      60
ctgcatccac atagggcagc tgtcctatag cagtggccct gctatctgat catcgctttc      120
gaatacaccc agttgcatgt aggtacattg cgccattctt cgccgcgagc accggtgccca      180
cgcccatcca cacatgcacg acgtaacctt tcgatgcaag gtagtggtcc caatcgaatg      240
aataggatcc aatacctgct gggagttggg accgctatac tgtaccatca ggacggatag      300
tggcnagagg gatngaaatc aataggcttc acgatccang catcagttca agacccgatt      360

```

gagttttgat agtggtaaac tccttcgggt tgnacgatag ggctt

405

(2) INFORMATION FOR SEQ ID NO:679

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 878 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...878

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:679

gccgtgtaag cgcaataggg tcaagcgttt ggtcagggag gcttatcggt caacaaacac	60
ctcctgaacg atgtcctcca agagagacag atctatgcac tattgcattt atggtagtat	120
cggatgaact tcctgacttt cgtacagggg gagagcgatg caaaagagtc tgatongaat	180
tgccggaaat gtacctcatc ggctttgaaa aacgagtana tacgatgcga ctgatcaagg	240
ctttttcgtg caactcttac tgctcccat tttcttctac aagcggttta tatcccgctt	300
acaccgcctt catgccggtt taccacctca tgctcgctct atgcacgaa gccttacgta	360
aatatggccc gggcaaagga ctattgctga gctcaagcgt attctccgct gtcaccctg	420
gggtggaagt ggctatgacc cgttccgtaa gaagttttct tcaactaatt cctcttatat	480
ggtatttctc acattcatac tcattctgca gctcgcaacg atagcgagat cattcgagtc	540
ggaatctacg accgaatgaa accatatctc cgaatacttt ttgctccacg gcattcatcc	600
gtggagtgtg ccagagaatt atagcgaga gttgcttctg tccgtgaagg attgaatcac	660
gacgaggttg ttgctctggg agaatggggc tggataaggt gtgcagtaca ccgtatgaaa	720
agcaacgaaa agcttcctcg atcaaattga tctgagcgaa gagtttggca tgccggtgct	780
actgacatag tacgagcatg ggatgatctt ttggcgatca aaaacaggta aagcttcaca	840
gcccgtagat cgttcatggt ttcggagtag tgaaaaac	878

(2) INFORMATION FOR SEQ ID NO:680

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 500 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:680

gattttttctg	aaaccactag	tagatttttc	tgaaactaat	atcagattca	cgtactgaaa	60
aattaagtct	tatcaaagca	cacttggtac	ggctttgacg	ctctactttt	cattccacga	120
gcgattaacg	caactottct	tcgatcaacg	gaactcggta	cgacgggtca	gttggtcgca	180
gactgactgc	tgctcccggg	caaagggtgt	acgaattcct	cggtgagcac	atcgcttcc	240
ttcagaaatc	gtgccgttcg	gcaattttgg	ctgtcaccgt	cttggggaca	gactaccgta	300
gcctttccac	gtaagcctgt	cggccgctat	gccacgactc	gtgggtaatc	caccacggat	360
ttggctctgc	ggtcagatag	tccgaggttg	tagcatcggt	gcctttcctg	tcggcatgcg	420
aacccaatc	gatccgaata	tccgattgtc	cgtgaggata	cgaaatcagt	tcgtccaagc	480
tcttcattgt	ttcggggcgaa					500

(2) INFORMATION FOR SEQ ID NO:681

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 570 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...570

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:681

agaagataaa	gacttcggcc	catgccaaag	aattggcaga	gaagtttgca	agaaagaagn	60
ccgtcagccg	cgtatcatga	tcgccaaaat	ggggcaggcg	ggcatgaccg	tggtgccaaa	120
gtggtcgcta	ccggctatgc	cgactgcgat	tcgacgtoga	tatggggcct	ctgttccaaa	180
caccggaaga	agccgccgtc	aagctgtgga	aaacgacgtc	cacgtgatgg	gcgtttcctc	240
tctggagccg	gtcacaagac	gctgatccct	caggtaatag	cagagctgga	gaagtcggcc	300
gtccggatat	tctggtgaca	gccggagggt	ttataccggc	gcagattacg	acttcctcta	360
tcaggccggg	gtcgttgcca	tcttcggccc	cgtacccccg	tggcctactc	ggcagccaaa	420
gtgcttgaga	ttcttttgga	aaataatctc	tactctcgat	aaggagtatt	tcagcattct	480
ctgtatggcc	ctcatntgat	tcctccaaag	ggantcctat	gantggcttt	tttatgttca	540
agtcttant	gtccnaaaag	tttctttctg				570

(2) INFORMATION FOR SEQ ID NO:682

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:682

ccgatgccgc	tacctccggt	tttggtcgta	tagaaaggaa	caaacatatg	tcgaacacct	60
cttgaggaat	aggagtgcc	ttgttctcca	catgaagggt	agtctgtgtt	catccaacga	120
atcgagacgt	tctcgacac	gaatacgaaa	agtcgtttct	ccgtatcggc	aggatatcc	180
gctcggcag	cattttgacg	aggtttatca	gtaccgaagt	caattgccgg	cggtcggccg	240
ggacatcagc	tccacgggta	tttcttcaat	atccaccttt	atatcgttgg	aggaagaagc	300
tcttcttgca	ggcgcaatat	ccccgaaaga	aaagcatgta	aagaatgtcc	tccttctcgg	360
gaggaggaac	tgccgtaaac	ttacggtagt	ccgtacaaa	gataacagcc	ccactccggt	420
actacgaatg	gtatccaatc	cgtagacagc	atc			453

(2) INFORMATION FOR SEQ ID NO:683

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 579 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...579

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:683

ggcggccttc	taccaaatag	cacaggcttt	cagagggagc	cgaagcctct	agccattcct	60
tcttttgccg	aatatgagga	tgcttgctcg	atgtacgaca	cgaagtctgc	ttctatcctt	120
ctaatagagga	cataggcgag	gctgattttc	caatatggat	ttctgctggc	tttgtaaccc	180
gaacaatccc	gatggcgact	gctgcagcgg	acagagatcc	tgctctgct	caacgatcat	240
cctgaacgac	attcgctctc	gaccagtcct	atgtatcgtt	tacgaccgag	gaaggattcg	300
tccggccgac	atcaaaggac	ggaaaaacct	tgctatggtc	tatctttcag	tcatgcctat	360
gggataccgg	ggcttcgcat	cggctatata	gtgccaataa	agattttatg	aagcgtgtgg	420
cggctttcag	tacgccgtgg	gggtaaacgc	actggctata	gaggctgcca	aattcatcct	480
tatccatcct	nacaattcac	tctgccgata	ccgcaagtgg	gcaacgcaat	acggtagatt	540
tatcacagcc	cttgaatcgc	cttcgatggg	gtagaagta			579

(2) INFORMATION FOR SEQ ID NO:684

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 475 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...475

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:684

gggcatggng aagtctgcat attcttcagg aaagccttct ttcggtgttg agccggtaac	60
gttcagggtga tcgtggatag caacatcgat ttcgaagcgc tgcagaaaaa atcatcaccg	120
gtcgtgcttt cgacaacggt atcatctctc aggccaacag agcatcatct acaacgaggc	180
tgacaaggaa gcagtttcac agcattccgc aaccacggtg catatttctg tgacgaagcc	240
gaagggatcg ggctcgtgca gctatcttcg aaaatggagc catcgcgaaa gatgagtagg	300
tcagagcggt gccttcattg ccaagaaagc aaacatcaat atcccaggag taccggtatt	360
ctcgttggtg aagctcgcgg cgtangagca gagacgttat ctgtaaggaa aagatgtgtc	420
ccgtaatgtg cgccctcagc tcaagcactt cgaagaangt gtagaaatcg gcacg	475

(2) INFORMATION FOR SEQ ID NO:685

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 568 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:685

ggccaaatta cttccagtt catccggacg gggactgatt tggctaagtc ctcccctacc	60
gacgatgaaa tcgacctgct gaccaaggcc ctccgacggc cggttctttc agcgtggagc	120
ctgtattgga tgtccgctcag gactgggggc cgagttttat tcgaatggaa aaggcgagct	180
ttacttcggt ggatggctcg ttctgatact aacagggtggg gagcctatct gggcaatcga	240
cttgacacca aaccgatttg gttgccgaac tgacccaaac ggtcggggca caagacatga	300
agaggctatt gcatctgtga aagattatct acgagaacgc ttccctcact gtacaccggc	360
tatatcggag tagacatggc agtatatgcc gaagagacag tctgtttctg catccttgta	420
tcgagatcaa tgtacgatac aaatgggggt ggcagctatc ctgctttacg acctttggat	480
agagaaaggt gaagaggtgt gttcgaagtt aagggttttc gaaccgaagg cgaancacag	540
aatgggattc aatgatgcag tgcagcca	568

(2) INFORMATION FOR SEQ ID NO:686

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1372 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1372

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:686

```

ggaaaataat acaaagtact ctcatattgg taattcacaa tggcaaaaaa tatctaagca      60
cactgaaaagt atcggccgga ctattctccg ccatcttggt gtcttattgg ccagcggact    120
tctggccaat gcacagacag ttagcacgag acgaaagatc aaggtctgca gatgagcctc    180
ttgatctctt ctccctttaca gaagcgggat acactcgcta cggtcatgtc gcattcagga    240
ttctcatccc gtacaaggga cggatattgc ttacaattat ggcatgttcg attaaacgaa    300
cctaatttca tgcttcgatt tgtacgaggc gaaacggatt attccgttga agctctttat    360
acatcctatt atgtggaaga ataccttcgg agggaagagg aatcgtggaa ttagtattga    420
atctcacaca ggaagagatc gaaaagctga gaggtatttg gcatggaata ttgccccga    480
gaataaacga accgctataa tatcttttat gacaactgtg ctaccgcctt tatcgagata    540
taaaagaaac cacaggagct accttgcaaa tccctcatga gggtgaggga gaaagtggag    600
acagctgata gatgaatgct gtaccgatgc cccttggtca agttcggcat cgatctggct    660
ctcggggcga aaacagatac ctatgcaatc cggaggagca gttattcctg ccgaatagaa    720
tgttggtatc gctacacgta ccaactctact ctatcccaat ggtcgatcaa cgccactcat    780
caggatacca aagagtgggt tccggctaag cgggccagta tggaaacctgc ggagaggggt    840
ggcctacacc tttattgggt tctatagctt tgctgatagt tttattgcag tagctgtttg    900
ggatgttcgt cgcaaggata tatgctatgt aatgactcta tcttatttagc cattatgggg    960
ttatcgggat gtgttatatt attctgtcat tttctcaga acatccgcat accaaccgga   1020
attacaatct ttcctgcttc atccccttca tctgcttata gggttgcctc tgactgtgta   1080
ccgctctttc accgagcagg ctttgtctat cattttatta actttgcgag ctaagtttga   1140
tcggtttggc aatatggttt ttgccgcaac aagtaggctc ccgctctatg tggccggcat   1200
tgctctatgg ttgctttccg ctgcgggata ttggtaaata gatggagaaa gaacgttcgg   1260
tgaaacgact tgtacgacc ttttgcccgc tattgactat agggaatggt acagtncagg   1320
ggcatcggtt catcccaagc tggtggtggt aaattaccat tgaccagttt ga             1372

```

(2) INFORMATION FOR SEQ ID NO:687

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:687

tagtcaatac tcatgacatg aactccgtga agacaatcgg ggacaagata tttacatccg	60
tcatggcagt aaggagtggg aaggatcgag tgctacgcga actcttcgga ttgtacgtcg	120
ctcaagaact tcgtctttgc caanacatgg aatactgatg ctctgtcagn cgggcatctc	180
tcgtgctctt ccttcttcca ttcgctctca cgaaataaaa tcattggncg gataaaaaag	240
anaaaaaatcg gatgaaanga aataatcagt tgtgtncact cttaaagctg tgttgctctc	300
catgtnagct ttcggcacag caaaggcaca gatacagata gtcgtgcacc gagtatgaaa	360
gctctggatg attcacccaa tcgcttcgag gttttat	397

(2) INFORMATION FOR SEQ ID NO:688

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 507 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:688

gccgtgctcg tccatttcga cctcgcacag gccgaggtcc ttcattctctt ggccaaatga	60
cgcagcagca ccaattgctt gtccgtcgag gggaaagtgt agaggattcg tcgctttgcg	120
tatcgaagcc tacatatcgg agaaatcctc tttcagttcc atattctttg tttcgttggt	180
atgcttcattg tttcttctc tgatgctgtc gacgatgaag tagagaatga tgagcgcata	240
catgcgatgg ccaaccattc ggcgctgcc atggcgtgcc attcttgggc aaaacatcga	300
actccatgta tttgaggatc gcacttacca caccatcaa agccctccgg cgatgaatcc	360
ggaagcgatg agcgtaccgc gttccttgcg gatttattga cagaagcgtc cttcgagcgg	420
gtgctgacga accagctgac ggtccgccga tgaggagagg tgtatttagt tgtaacggga	480
taaacatacc agtgcaaaag gcaagtg	507

(2) INFORMATION FOR SEQ ID NO:689

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 224 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...224

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:689

gcgagacatt ccatcagaga gaatgtactc gcccttacta catttgagag gaaaccggag	60
gtcttatgcg ggctccataa atgaatnttg aaacagcccg cgatcaatcg tggatccttt	120
cccccgactc aatttgtttg tatttcactn ggcatataaaa tggaatnttn aattgcattt	180
ataggtaggg tgtgcaatgc gcaatggtag ntnctatgtt tggg	224

(2) INFORMATION FOR SEQ ID NO:690

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1059 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1059

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:690

agattaataa ttgctggtga ttacttcagg attatcttgt tcgttgacaga tcgggaaata	60
ctacagcagg cttgaacacn tgggcttccct ccatcgggat ccaggcatat gccatgatga	120
tgatgatgtc gcccgatga acgatgcggc agctgctcca ttgagacaga ttacccccga	180
acctcttttg cccggttggg ataggtctcc aagcgtgctc cgttggtgtt gtccacgatt	240
tggacttctc tccggcgatg atgttggcag catccatcag atcttcacgc atgggatgct	300
accacatag ttgaggttgg cctccgtaat ggttacgcgg tgtttttgga ttttaatact	360
tcgacgtaca tgttggtttc caattctcta ttttttacg attgcaaagt aacttaaaat	420
cgctgtaata ttgcataaaa acggcagttt aacgcaattg ggcttgatta ttaaggacat	480
acggcgcaaa tgcagaaaat ccgccacctg ccacgaggca gtaatatgcg gattattgca	540
cagaaagggt ttcaaatacgt taccggaaag caaggtaatc acctccggca aaagaggaga	600
aaaacagcgg ttttccgtgc atccgttgct gttgctcact gctctatatt ttgcatagca	660
gggttaggct ctttcatgtt taatttgcaa ccaaaaagaa aagacaatgg caagaagcac	720
attcaagggt atgtttatgt gaatggcagc aaggagaaaag aaggatatcg ccccatcatg	780
ggacgggtac aatcaacggc acgggtggctc agttcagttg caagcgcacc atccaaagga	840
gttgtgggat gtgaaaggca acagggcgaa aggcaagagc aggaagccat cgccaccaac	900
ctctcgctcg acaacatcaa ggcgcaaata acaagcacta tcagcgtctt tccgaccgag	960
aggcgttcgt cacggcggag tgggtgcgcaa tgcctatcag gggctgggca gtgagtacga	1020
tacctgcta agcgttcgac aggggaatgcg cctctctgc	1059

(2) INFORMATION FOR SEQ ID NO:691

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1021 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1021

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:691

```

ccaaagacct ttatggcgat ggcagaaggg gatccggaag accacactta cgccaaaaaac      60
cactccttgc caccacccag gcagccatcc tctcgggcta ccaatccggt ctcaaagagt      120
gtctgaccga aatggcaaca ctctatccgg caggggaatgg caagagtatt ccacggggcca      180
agcagtcgct tcccttctga accggcttgg tatcatctcc gacctttggc gacaaatcga      240
aggaacagac aagaagagaa caaatgctc atttccgatg ctccgtctct attgacagga      300
tcatcgacgg gagcgagacc ctttctgtct atgacaaaat cgggtacgca tcgaacacga      360
aatgatcgat gaatttcaag ataccagccg ctacagtacg aaaacttcaa gccctgtctg      420
tccgagagtc tggctcacgg cagtacaacc tctctgtcgg cgatgccaaa cagagtatat      480
accgcttccg aatgccgacc ggcgtctgct cacagaggtc gtcagtcggg attttgcga      540
acatcggaga ggtcaatct accatataat tggcgaagca ctcccgaata atcgagtcca      600
acaactccct ctacaagcat ctgccacaaa tcttctgtg aggctatgac tcgcaagacc      660
gagacgatgg caatgccgca tcctaattgc cggaggagat caaccgtaca ttcatgcaga      720
cctatgccga tgtgggcagc ttgtgccacc ggctaaagta gaccggcatg gaagcgtctg      780
cattatcttc cgtcgccggc atcatcagaa gaagcgggaag ccaatctttc gtggaggagc      840
agatcttgcg ggatcttccc cgttttatca tcggtctgca aaaagagggt atgctccttc      900
ggatattgct attctogtgc gcaaaaactta taggctcgcg agatagctcg tgccatgctc      960
tcttatcaac ccgaaccgga gaagaggact atccccttat cccgatgtcg gacgaatctt     1020
t                                                                    1021

```

(2) INFORMATION FOR SEQ ID NO:692

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 616 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:692

```

cgccctgctgg agtatatgaa ggccaaacct cttctgaatc tggggcttcc ttgggagaag      60
gttccggagc ggtgtgctca taccocatca tagtatcgcc gtcagcatga tcaacgaaat      120
gcatactttt gctcaagcgg ctgtgacaag tatttctaaa agttcatgaa ggaaaagcag      180
gcaaaaacat atcagcaata ttggcagcat ttatgctgct cacacgctta ccgctgtggc      240
gtttgtgagt gtccctgatg ctgctttcaa gcgcgccacc gattattgga gtctgtgggt      300
tggcttacgg gaggactgat ggttctaata tgccacttgg gacactgatc gaccttcctg      360
tcaactatggt cgtttccctt gcaactcctc ctgcgttctc tttacagggg ctttccatga      420
ggatggattg ggtgatttct tgatggattc ggtgcagggc gaaccaagga gcgcattctg      480
gctatcatga agattcgcat acgggtactt aatgggtatc tggccttcac cttttactta      540
tgatagggat ctattctctg gcttctcttc cttccgatcc tgacgctttc gcattagggt      600
ggtgggcgat cctctt

```

(2) INFORMATION FOR SEQ ID NO:693

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 660 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...660

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:693

```

ggcttggaga gccgtttcga agagatttcc acgcttatca cggatccggc gtaatcgcg      60
acatgaagcg tttcacgaag ttgagcaagg agtatcgcat ctggaaaaga tccatacggc      120
cgggcgcgac tatcgcaatc tgctcgcaac atcgaggaag caaagcatac catggccaaa      180
gagagcgacg aggagtgcgc gagatggctc gcgagatgct ggccgaggct aacgaacgct      240
tgcccttttg gaggaggaga tcaagatgct actcattccg gccaatccgg aggagacaag      300
aatgccatcg tggaaattcg cggaggaacg gggggcgatg aggtgcactt tttgccggcg      360
acctctaccg catgtacgtc aagtattgcg aggc aaaggc tggcagggtg aggtcaccga      420
cctgagcgaa ggagctacgg gggttacaaa gagatcgtct tctcgggtcaa gggggaagga      480
gtgtatggta cctgaaatat gagagcggtg tgcaccgtgt ccagcgcgta cctgcgacca      540
gacacagggg cgcatacata cctcggcagc taccggtggt gtcttgccga agccgaaaga      600
agtggacgtg gagatcaatc cggcagacat cgagatgatg acgttccgtt caggcggtgc
660

```

(2) INFORMATION FOR SEQ ID NO:694

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1242 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1242

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:694

```

ggaaattggg atgaagcact tgccttgaag cttgncagca acggcgaggc agatggaagg      60
aacgtgtgat catagacggt cgccgcaagg atatccagat tactatctgg taagagacgc      120
cgaagcaaac gccattcgca aggagtgaag cgcatgcacc atctggtatt ggatcatggt      180
tacaagcgag tgctgaggac gattactgga tcgcatcgacc gaaaaatgca ccccttttca      240
gttctctttt tacgatgttt tcttccgcca tgaggagaag ctgaaacgtg ccccaaacca      300
acgaaagagg gcgtcaaagt cgtcatgcag ctatatgctc cattgttcac cccgaccaga      360
agatctgtat gacgggcaat agtcctgctc ttgcaactgg tcagtggagc aagcccggtgc      420
catgcaccat ttgggaaagg ggaatggtct atcacgctag agaaggatga attacctcca      480
cttttggaat taagtttttc attgccggac aagacgactg ctccgacatc cgttgggaaa      540
gggagaaaac agatcttacc gattcgaaga gacggatgcc tatggtgcgt ctatttggcc      600
ggtctctgtt tccgcgaggg tgattatatg ccacgcttgc cggcaccgtc atccccctat      660
tcggactgcg caccacaag gattgggcat aggagacttc ggtgcactnc gccgtatggt      720
ggactggcg gcaataccgg ccagcgcatc atacagctcc tgcccatcaa cgacaccact      780
tacaacgctc ctatcgcgac tcctatccat ataatatagt atcggtcatc gcctccatcc      840
tatctatgcc gatttggatg cgctaccacg actgaagaat aggtctctgat ggcaaaaatg      900
gagaagcagg ccgaagcact gagggcactc agcaaatgga ttatccggct gtgttggctc      960
tgaaggagga atttctgcat ccctgtatcg acaggaaggg gcgaatgtga tgcgcaagaa     1020
agctttccgc aattcgtctc agcagcggcc gattggttgg atccatatgc ggctttttcc     1080
atctgcgcga caagtacgag ggactgccac tccatctgtg gcctgaaata cgtggggaaa     1140
aaaccaaadc gaacgaatgg cggatatctc cgaactaaaa cggagaccaa ttactatcgc     1200
ttngtacaat ttttactcca cgagcgctgc atgcccgat  cg                        1242

```

(2) INFORMATION FOR SEQ ID NO:695

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1066 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1066

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:695

```

gtcatggttt gccgaaggca ttgacctgct gaagaacttg gcccataccg aatcgaggcc      60

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gagttcctcg	gtctgaagtt	ggagttcctc	gaatatgccg	caagaagact	acacagaaaag	120
tgaatctttt	tgagaaagtg	caaatcccgg	ctacaaagac	gccatacgca	agatcaaacg	180
ctatctggag	gatgaaagag	tttgtccaaa	tcctctcaga	agattatgcg	agccaatatg	240
gagaacgtaa	caaaggagag	gaggtgatgg	catgattacc	gcaatgaaca	aatacttttc	300
ctgatctatc	accgtgagta	cgaagctttc	ttggaaaagt	tgctacgata	ggggtggtac	360
acatccggga	aaccaaggct	acgaaagatg	tgcggaattg	caagatctcc	tcaatttgcg	420
taaagagatt	gcccagacca	acgcatgctc	gcttcgtaca	aaagcgagga	tgctcccgcc	480
gaacagaccc	gacacttgcg	tccgaagctg	acggagaagc	tgccatgcag	gatgctcagc	540
tcttttcgcc	gaagagaccc	gtcttaaagg	cgcgatacctg	tctaaaaacg	ggaggtggag	600
cacatggaag	tttgggggca	gttcgacttt	gcatccacga	aagactccgg	aaagccggct	660
atgaagtga	tttctattcg	tcttccttcc	ggcttacaaa	cctgagtggg	aagaaaagt	720
cggagcagtg	gctataatac	cgtacgctcc	actgttcatt	tcgtcaccat	agggcataaa	780
caggtgccag	acccgatgcc	gagcgaatca	aactaccoga	ttacgatctg	gctcgctccg	840
tcaccaacag	gaagagctgg	aagctctatt	ggaagcgaat	gcaaggacaa	aacttcattt	900
gccgacaatc	gtatggctga	actcacggcc	ttgacaacct	cctgtcggac	aaattcgcat	960
tcaccagtgc	catggtacaa	ccgaaggaca	agccgatgac	aaactgatgc	ttctcgaagg	1020
ctgggtaccg	tgtcagaagc	ttcgactatg	gagcaggcat	tggccg		1066

(2) INFORMATION FOR SEQ ID NO:696

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 409 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...409

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:696

tgcccgatgg	aagcgaagag	tgtaaaacaa	ggcgtatcaa	tcccgaacgc	ctattcctcc	60
cgaatcgaca	gccattcacg	gcattaggga	tgaggatgga	aggactgtcc	gccattccgt	120
tcggtggcca	aaagtctggc	gcaatggtag	aaggggtgta	tttggcaggc	ttcaattcga	180
cgcgattcga	tgtgccatgc	tggtggagga	gttcctccgt	gcccggagtt	ggacatcgac	240
ctccgcacag	aaagctcata	gacgttcaga	cgatttttca	taagatggaa	cctccacatt	300
ggaggcagct	actcgtttct	attgnaatag	aactttggaa	aatcgcattc	ggctgaagcc	360
gatacgccgt	gctacatacg	atgtgttcaa	ggccaattgg	atcgttatg		409

(2) INFORMATION FOR SEQ ID NO:697

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 958 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...958

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:697

aaggaactcc	tttcttttcc	atthttcttcc	aaatggaata	gacggattta	ccctcgcttc	60
atctcatagg	acatgtccat	accggcaaac	cgttgtttta	gcggtgccgc	aaaatgctcg	120
aacatctcta	aacgatgctg	ctcgggtgtg	ggattttctc	cttgatggct	tcatattcct	180
gtggatgctc	gtattttaagc	tcaaatcttc	caactcgctc	ttgatggcga	agagacccaa	240
acgattgcc	aggagcata	gacatactgt	gtctcacctg	ctatcttcat	ttgctggccg	300
gaagcatgga	gtccagtgtg	cgcataattat	gcaagcgatc	ggcatcttga	tgaggataac	360
gcggatgtca	tcattcatcg	tcaggataag	ctgcggaaat	tttcggcttg	ggcggaacta	420
ttgctgaata	cctcgccgga	tttttgggtca	gcccgtccac	gatctgagcg	accttgctgc	480
cgaacatata	cgcatactct	ccacgggtgta	ctccgtatcc	tccaccacat	cgtgcagcaa	540
gcacaacaga	tggaagctga	tcccaagcct	atttcctggc	acacaatcgt	gccacggcaa	600
taggatggag	aataacggc	tcaccgctac	gtcgcttgca	ccggcatgag	catccttggc	660
caagtggaaa	gccttgctga	tcttttcaact	ttgcgacgat	ggttggaatt	caaatagtct	720
tgaatcaaca	aagagattcc	ctctgaatca	aaagcttctc	ttcgctgac	gcccccttat	780
tttcgtctct	atatcgggat	tctttgcact	cgcgtcttgc	tccataatct	atttcaatct	840
acaatgtggt	catactatac	aaatgtaaaa	aaaaggacgg	tgatcatcat	gcgcaaatta	900
ctgnctcggt	tgcaatatth	ggctcagcca	ctactttgat	tcagccacgg	gcttagtg	958

(2) INFORMATION FOR SEQ ID NO:698

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 354 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...354

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:698

gagttgatct	cctttggacg	agacgtctcg	gatttcctgc	cggagggggt	gtcctcgatt	60
aagaaaatca	aaacaaaaag	ccttgacagt	cagacttcgc	aaggcttttt	tgtgtccaaa	120
attcagccgg	tggtacatta	tcgggtctct	atgagaggaa	aaaagagtga	ttccgaaagt	180
agtactctc	tcaatatcat	acgccaaaaa	agttttcaac	aacgaagatg	agtttggaat	240
gattcaata	agcatctgta	gagaggagaa	aagccgaggt	aaaagtgcag	ggaaaggaac	300
tgcatagat	cgaaattcca	cttaaaacca	agccgtacaa	cgactggata	taaa	354

(2) INFORMATION FOR SEQ ID NO:699

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 670 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...670
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:699

tccccggggtt ggattgattt ggtttcgagt atcccgatga taaatttttg cggtttggtc	60
gagtttttag attgattcgt ctattccgaa ttttgagact tttcgacca caaaggaatt	120
tgttacctat gtttttagaa tcaaagccag ggcgcattta cttcagccac gatttttagcc	180
atcttattga tcatttctct tccatagcga ttcttcaagt cgaaaatgcg tcgaccagca	240
atatccaaca gcggaagatg ctatttggtg gtcttacgtt acgatcaca ctgtggctat	300
ggagacaaat accccgtaac aaccgaagga agaatcattg caagtttttg atgactgcag	360
gagtagggct tttcggaact tttacagcct atttgcttcc ttatttgtct cagataacaa	420
aaaagaagaa acagaaacaa agaatgattg tcaatcttat tgctgctggt gcctgatatt	480
gagcagaata cagctgatac cgcttccact taattccact catgaactct attatcaaaa	540
gatggttgta cagcgaaagg ggcaaattgt attcttttcc gattggagag atagatgaca	600
ccaatgcatt gttagatcta atctgggttg aaggatataga ttcccgatta aatacatggc	660
agtgcataaaa	670

(2) INFORMATION FOR SEQ ID NO:700

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 944 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...944
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:700

caagttggtt cagcatgcct atgcaaaagc tttagagctt cgnaagttgg ttccggacag	60
gaggtcgaaa atgtcggttaa gactatctat aagcctttac ggccgagaga tttcagccaa	120
gatggttagag ctattgaagc cggaagggtg cgtgccaaagc tggagatcgt atatcaaagt	180

ttggaaggct	tgcacggcg	ataccgaatc	atccgggaga	ctgggtatttc	tccggcgatt	240
atccgcaccc	ggaggcgctc	atttggtaaa	tgaagctttt	atcagctaca	tggagaggac	300
tatggcaaat	aattatttcc	agaatcgaaa	gagtattaag	aactatgaga	gagcaaagaa	360
aagcgacatt	gatattggac	gatggtagcc	gttcgaaggc	tattctttcg	gttgcgaaacg	420
tgctgtggcc	ggagaggctg	tttcaatacg	gctatgaccg	gctatgtgga	gagtctgacg	480
gatccgagtt	tgcgggacaa	atcatggtta	tgacctatcc	tttgggtgggt	aattatggct	540
tccgatgaaa	gcagctgagc	caaacggcgt	atcttgcttt	atggaaagga	cagaatacac	600
atggaaggaa	tcggttggtc	cgactattcc	cattcttttag	tcattggaat	gctgtcgaaa	660
gccttggcga	ttggctcaaa	cgtgagaggt	attcgggtctg	acggggatcg	acacgagggc	720
attggccaag	cacctcgcg	acacgggttcg	atgaaaggaa	agataattct	cgaaggaggc	780
gaagcattgg	cttcgccgat	ccttacacag	tcaatcaggt	agcggaggct	tctgtcctga	840
agtaatcgtc	tacggcactg	gaagcaaaaa	gtgggtactc	gtgattgtgg	aagtgaagga	900
caacattatt	cgctcgcttc	ttccgtgaag	aataacgctt	ctac		944

(2) INFORMATION FOR SEQ ID NO:701

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 704 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...704

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:701

tgtaaccggg	ccttccgaat	ccgaccaagt	aagatgttgc	catcgggggc	gtcgaagggt	60
accactttt	cggtcctggt	tcgggcttgt	cttccgtata	gttggagcag	tggctctcggg	120
ttggcgctgc	tgtctcccga	tactcgggtga	ggtgggacag	aggactgtga	tggagcaacg	180
gatggctgct	ctttggcgga	gccggccggg	gagataccga	tccgctcacc	acgggatttg	240
cgtgcgtgct	ccatgggtcg	gaggcggagc	agtcagtcce	ttgctaaata	aagcgcgata	300
ttcatcagcg	acaactccaa	caacagacgc	ttgccattgc	tctgcgatac	tgctgggtcac	360
aggcattcag	tatcttgagc	gattgggtata	agaagaagtc	gggcaacgtg	ctgccatata	420
cacatatcgc	tgtatgacta	ctcggactgc	tccaacagcg	gcaaggtaga	agcgtcctga	480
gccatcatca	atcgcggaag	aaagaagcca	atccgctcac	gatcacctgt	ccgtcgaate	540
cttggcaagc	aattcgtcca	acacgatcaa	tacggatcgg	taatccccctg	taaaaagaaa	600
tccgtcagac	ggaaataata	atcgtagtcg	aggatatcag	attctctata	gtattggcat	660
aggtaatatt	gccttncgaa	aaacggcaat	gcggtcgaag	agcg		704

(2) INFORMATION FOR SEQ ID NO:702

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 719 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...719

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:702

gctggagtta	taaagcccaa	cagagccacc	ctcagcccg	tccgatcgag	accttataag	60
gagcccaata	tggttgccg	gtctcggtgt	cgatagcgtc	gccccaaga	aagggaagtc	120
gcagccggct	acccatttgt	catagacgca	tggccgggtct	cgatgtcgtg	attgcccgg	180
atggcgggcgt	catagccaag	tagttcatcg	cacgggagaa	gagatgagta	cccgctcgtg	240
ccatgagtta	taatagtagg	ccgtaggatc	gccctgcaat	acgtcgccac	catcaagagc	300
agcaactccg	atctgtccga	ccgggcagct	ttcagaaagg	aagcaagcgc	gacattccac	360
ccgaagtcgg	tcttaaagct	ttgaaatcag	tgggaataca	ttcccgtgaa	gatccgtagt	420
gtggataata	cgaagcgaat	gtcctgcctg	cttgacatc	caccgaggag	aaacgtcgcc	480
agcggaagca	gacggacagc	aaaccgaaaa	gtctcttctt	cataccgtgc	aatctgtaga	540
ttcctaaaag	tctatttcac	ctgactacct	gcagcaactt	cagccgccc	ataatgaccc	600
tgagcgaacc	atccgcatcc	tctgccgaaa	gaatcatccc	tccgactcga	tacctttcag	660
cttgcgcggc	ggcaaattgg	cgataagcat	acctgcttgc	ctaccagctc	ttccggagc	719

(2) INFORMATION FOR SEQ ID NO:703

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 420 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:703

ggcaaagtcc	atcttcaccc	actccggctc	catatgtctg	aaacgtcgaa	ccccatgttc	60
gccttaagtt	gcccaaagat	cgctcgggt	tcaatacacg	tgcgttgccg	tgcacaagac	120
cttactccga	gttgagccga	tccttagctg	cgctttgtag	ttgttgagac	gatgattcac	180
ttcgatgata	ctattaccat	agcctgtctc	tctgctaatt	cccgaatctt	ttatggatga	240
tattttctga	ccacagtaca	cgtctgactc	atcgatccga	acaaaaatg	caccatttta	300
gttcgaattt	tctgaaaaaa	tggaacgaga	tttttttctg	tgtgcgtgag	aattttttgc	360
tttccgcgcc	aaacaaaaaa	agttcccacg	cctgggtttt	aggaagtgtc	aaaacgggaa	420

(2) INFORMATION FOR SEQ ID NO:704

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 819 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...819

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:704

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ccaaatgaat tcatatatga atttctccaa ctatttctat ttctcttcag gttcagtaaa      60
tatcttctat gcaaaaggcg tatttttagt cgcaaagtac tcatttataa taagaaaggc      120
aaataaaaacg gcaagaaaac gcctcttcga gcataaaaat gtcgcaagag gtgtatgtgg      180
taatcagggt acataaacag ggcaaaactcc acctttcgtc gtttgacgag acctctgagg      240
actttccctt gtatcggcag aaagagacaa attcacgata gaaattcctg tcgccgactc      300
tatcttccgc aacagtcggc tcttgggatg cttgccgtat ccggcaacct gcctgtcccg      360
acattgtagg aaaggacggc aagcagaaga acgttccatt taaaacatct gaagataggg      420
attacaata gcttcctaaa ttcattctccg ccaatctgtt gatttcattc ttgtatagatt      480
caagggtgat aggatgatgt tctccacata gataccgatg gtcatatccc tgtttctcac      540
gacatgacta tctccgccaa cgtgtcttgc aactctttgg caatatagtg gtcttgcgat      600
tttcaaggt gttgcgacag atgaaaagcg actcatatca cctttatcag cctttcgct      660
ttctcttctt gggactcttg aaaaatcttt gacattgggt cttcattttt gacgttccga      720
ttcaacacac tgctctctaa ttggagagcg tttatttgcg tctcattott ttcattgggaa      780
tacctgtgaa acaagttccc ggatggcaac aggatctac                                819

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(2) INFORMATION FOR SEQ ID NO:705

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 476 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...476

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:705

```

ggcaaagctg gaggagctat ctgcattctt cccgatcggt gaggggctgc ttcgttgatg      60
cgcaaattca aggagcaagg tattcgctct gccattattc gggaggattc cgactttatt      120

```

cgcacaacat	caaagagcgg	tacggctcga	ctacatctgc	acatcggagg	cagaggtgga	180
aaatggcctg	ctgacagtcg	tctatcgggt	accatagtg	atgcgaaggt	caaagccgaa	240
tttctcgtc	cctggccaa	gagctatccc	tcacccctgc	cgaaataatt	gccgaggcga	300
tggagccaat	gatgtaccca	tgcttgactt	ctcggccggc	agctcatatt	caacagttcg	360
gcacatccgc	cttccatgcc	tcaactacgc	atgaagccat	tctccaattc	atgggttgcc	420
gatagtcgcc	gacccgatcc	gtagaataag	aaccttcggt	gctaagaaga	aattta	476

(2) INFORMATION FOR SEQ ID NO:706

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 703 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...703

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:706

gtcggttactg	tttgcaggat	actctcccta	tcgtatctct	ctattgatta	gagtgcggttc	60
cgagaatgag	tttaatctat	ttttcgtggg	gcaagataga	atTTTTcaat	tccagcagtc	120
tttcccctct	tctttctgcc	tttcagccga	gagcctcgaa	acaggcaaaa	ggataaagga	180
tgcgcgacga	agtatcctac	aaagtTccag	aaaatgatca	ccgtcgggac	tgcatatcga	240
atagcgaccc	tgtgcgctta	taacggatca	gacgagcaaa	aagataaagg	gtacgaacaa	300
aggaccgaaa	gcaacgacgt	aggccacagg	gtgcctatcc	cccaataaag	cattgtcata	360
gacaaaacagc	aagaggagat	agcacgtcca	taaacgggat	ttgctccata	aaggtggtga	420
cagccacatt	gcgaacgaca	gcatgaaaga	gcgaatctgc	tcacagcgga	gcacgtgtcg	480
ttgtacccaa	tgaagagatt	gcatcccgtg	cgaggagctga	gcagatagcc	aatcatcacg	540
ccaaggaacc	ctcaccggat	ggcataatga	atatgcaaga	gaagaaaaaa	accgtgaatt	600
tgtagtTttgt	gactaagaga	cttcccggcc	tttctacttc	gctctgtccg	aatgcccatg	660
aaccactctg	ctacagccgg	atggcctagg	cagggatgaa	ttc		703

(2) INFORMATION FOR SEQ ID NO:707

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 647 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:707

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agatcccttt gaatcattga gactctcttt gaaaggtcca ctctagaggt cccagagcca      60
aatattttatt gttctgtcca gaaattggaa gagatgaaac aatcctttat gtactaaatg      120
acaagatata tgtttacaga gttgcacaat gaaagaatac gagttgagcg attattttta      180
acacttccct cgttgaattg tagtatacct caaaggaggg gattgttcga gggtgcgcta      240
ttttggactt tataatgttt tactctgcct caaaaaaaaa agaatacagg ggtttggtgc      300
tgcagtcgta tacgaaagct agaagttgaa taccacgcag gaataacgaa aaaatcaaaa      360
acaacacaaa aaaacagaat cggggactag agcgggggca tagggaatgg ttattttccc      420
actcatgggg atttcctgcg caaaagctat atctttgnaa atggaaccaa tcagcgtgga      480
aggatttgta tgcttgcaac ccacgagaaa aaaatgctaa aacattttct cttagaaagt      540
ctttcgacag ctattctcca atgggagtg gcaagccctt ctgtgcgagg aagtttacca      600
attaaaagca taaagatatg agctatctat tcacattgaa atcggtg      647

```

(2) INFORMATION FOR SEQ ID NO:708

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 568 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:708

```

ctgcaagaaa aagtaaccgt tcgtcctgcc aaagtgatcg tactggatga atcctgatat      60
tcgagaacaa agagctgcgg gatctgatga atgtgaaata ttcgtcgata ccgatgcgga      120
tattcgattg gcgcgcgcgc ttgtgcggat gtccaggaac ggggacgcaa tatggattcg      180
gtattggcac aataactcagt acggttcggc ctatgcacga ggattttgtg gaaccatcca      240
agcggacgcc gatctgatca ttccggaagg tggattcaat tcggtggcgc tctcctcctt      300
gtcgaaaaaa tccgatcggt gattcgtaag gaagaataac agcggatact ccgatctttc      360
tctcaaaacc aaaaccttaa tgcgattaaa acaaggcttt ctttccaaaa cagcattcct      420
gtattgtggt ggatagctgc ctcttatctg ccattacgaa agctgctccg cacaggcaca      480
ataactatac atattccgct cctctttcta tcattnctcc cgacatcagt cgcttctatc      540
ggcctatccg cagagcatca cgaatgtt

```

(2) INFORMATION FOR SEQ ID NO:709

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 427 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...427

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:709

ttgccaatat ggaacgctcc ggcgtaaagc tggacacgga ggtgctccgc gcacagcttc	60
cggacttggc gaagagatgc agcgaatcga agatgaaact accgtttggc cggacactca	120
ttcaatatca acagtccctc tcaagtggaa ccgtgctctt cgaggaactg caaattaccg	180
aaaagcccaa aaagacaagt ccggcngcta ctctacaaac gaagaaattc tgggtcaagct	240
acaggaaaaac atcccatcgt gcgtctcata ctggactata gaggaatcaa aaaatactca	300
gtacctatgt agaagctctg ccggagatgc gctaccccgga tggaaagctgc atacctggt	360
caatcagacc gtcgctacca cgggacgtct ctccagcagc aaatcctaata ctgcaaaaaca	420
ttcccgga	427

(2) INFORMATION FOR SEQ ID NO:710

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 486 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...486

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:710

ccccgggaat aggcggattt tcgccggcta tcgtactgta tctgctgatg ctatcgtagc	60
caagcgtaca ggctgcgagc agaagtgaag ctaaaatctg ctccgctctc ctttcctctc	120
ttcttcatca caaccaaaaa gcaccatata atatggaact aataggcact ttttttctta	180
tcttgctaata ctatttgtaa tccgatttct gattcggatg ttccgcatto gtcagatggt	240
tttcgacaga agaagaactc ttcacgacaa ggaacagaaa cctcaaaaaa ccctctccgg	300
gtgaaaaagt cgaactcgac gaacttgaaa agcgaagatt tgaaaagacc aaggagaata	360
ccgtagactt cgaagacata aaggacaaga gcgatgcang aaccggatgg atccatatat	420
tcagcagact cggatccttt tctccgatat caccctgtcc gcttggtatc cggatccgac	480
atataa	486

(2) INFORMATION FOR SEQ ID NO:711

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 543 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...543

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:711

```
gcagagtcag ctgacaatcg cgtcctgcat cgtgcaggaa gcaagaatca ctgacaatcg      60
cgtcctgcat cgtgcaggaa gcaagaatca actgacaacg cgtcctgcat cgtgcaggaa      120
gcaagaatca actgacaatc gcgtcctcat cgtgcaggaa gcaagaatca actgacaatc      180
gcgtcctgca tcgtgcggga gcaagaatca actgacaatc gcgtcctgca tcgtgcaggaa      240
agcaaaatca actgacaatc gcgtcctgca tcgtgcaggaa agcaagaatc aactacaatc      300
gctgtcctgc atcgngcang gagcaagaaa cagctgacaa tcgttcttat ttctcgccta      360
tttgacgagg aaaggagtac ttctctgatg gaacttgggg aaatttctat ttgctcggtta      420
cccatatacc ggaggtttga ctttcccgaa gacacttaga atcagctctg cagcaaaaga      480
gctcaatgaa cttccatgca acaagtctta cccgcagata cgatttctac naggaaatat      540
atg                                                                                   543
```

(2) INFORMATION FOR SEQ ID NO:712

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 490 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...490

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:712

```
gttcagtctc caacttgcta cgtgtatcgc gcagccggac agatgccagt tgtatgcaga      60
agcgtattgt tccaagaaac gcatccgctc catgccttgt caaagctctt ggccgatgaa      120
atgaaaagga tgcgatccaa cgagcgttcc gcttttgcac agactgtaga gcttgggcat      180
attcatcgga tcgggcttct cttctacaga gagctgatga catacacccg tcatggaatc      240
aatgtggatt gcaactcttt gacctcattg tccaagagtt gtaccatctg cttgggttgag      300
caacctgctt gttcaggagg ttgagatgct tttgtttgtc ttgttgtctt tottggtatt      360
tcgtagtctc cgatcggttt ttctgatggc ttgagggcct tcttacgttg cttctcaagt      420
```

cgctgtacct gcttggattt tgtcccgaga gcaggcagga taaatgcaga gaggagaaaa 480
 gatgatgcag 490

(2) INFORMATION FOR SEQ ID NO:713

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 659 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...659

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:713

gctgcatcag	gaatcgcgcc	gataccgagt	tggagtgtgg	caccatctta	ataagctcgg	60
cacaattacg	cccgatagct	tcttctactt	ctccgatttg	ggctttgcaa	gagaatagat	120
agggtagtct	gccatcacga	tgtaatcaac	ttcgatatgt	gaatcaagtt	gtcgccatgt	180
acatatggca	tttgacgttg	atttccccta	taactaaatg	agcgctttct	gctgccggtt	240
tgctaaatcg	caagatactc	caaaactaca	gtaaccattc	tcatcaggca	ttgaagctga	300
acgatggcga	catctatgtg	aaggatgtct	ttgcgaatca	ttgtggcact	tcataaaaga	360
ataccggaat	gaagtcggct	ctattttcct	cactgcttta	cgagaattac	cacctacaaa	420
attggttatg	tgtcgggaag	ggggggccatt	tcaggtgcca	tatattttcc	ttcgccgaga	480
caaagcatgt	ataaatttcg	acattctgga	aaaggtcggc	ctgttgtagc	agtgcacac	540
acaactctga	ggaactccgg	cagcatgtga	caaagctacc	cgttctcctt	ttgatatgtt	600
ttacgcttct	tcgccgaaca	ttcggaggca	tatccgcaat	acgtctttca	taaagctat	659

(2) INFORMATION FOR SEQ ID NO:714

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 538 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:714

ggacggaccc	gaattgatcg	ttcccgaaga	ggtgatgggc	gtgaaaatct	ctctatcgga	60
ttcttcgtgg	atccggacaa	tgctgttctc	tggcgcgagg	tatggcaggc	aatgccctga	120
cacagcttat	ccgcgatgcc	aattgggaga	gttggactac	ttcctgatcg	atatgcctcc	180
gggaacgagc	gacatcacct	gacacttgta	cagacgctgg	ctattaccgg	agccgttgta	240
gtgacacacc	gcaggacgta	gccttggttg	atgctcggaa	aggaatcagt	atgttgtcgg	300
agagaagatc	aatgtgccgg	tactcggttt	ggtggaaaac	atgcgtgggt	cacaccggcc	360
gaactgccac	agaacaaata	ctacatcttc	ggcgtgatgg	cggtaagaat	ttagccgagg	420
agttgaatat	tccttgctcg	gcagattccg	ctggtgcagg	tatatgccaa	agcgggacaa	480
ggaatacccg	gctgtcggat	gatcgatgat	ggaatgcttc	gcgaatgctg	ccatgtaa	538

(2) INFORMATION FOR SEQ ID NO:715

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 634 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...634

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:715

aaatagaacg	aatgcttcgt	ggcgaaaaag	acgtgctctg	tccggggcgt	gtacatgggt	60
tgccaaaagc	agcggcacca	ccaatagcaa	aagcaagtca	tccccgttcc	ataccgccac	120
ctgcactatt	gccattatca	agggggggaag	actccctatc	gttataccta	cgcaatagac	180
ctgacagtcg	tttcttaaga	ctaaagggtt	ggtactgggt	ggcagncacg	cccctgtatc	240
catgatgccg	atatacaagt	cggcgacttg	agtgccatcc	ttgtcgagaa	tatgctgtgc	300
tccgcaactg	catgcgcgta	ccctcgaaag	aaacgctctt	gatgacgagt	ggacggagaa	360
gctcaaagcc	gtagttcgcg	aagtggcgca	tgacgagtcg	gaagcttgtc	cggcgtagccg	420
tcttgatcc	ttgtcttgat	caggatgtac	tgcagctac	aggccgagag	actttgcgga	480
tgtatggccg	aatggaagtt	tttccacggc	ggtatcagct	ttgctcctat	cgagcgcagt	540
gagaagctga	taccttcttc	acggatgcag	tatatggaga	cgtattatct	tcggaagggt	600
cttcgcattc	aggatgatcc	aaggataccg	aatg			634

(2) INFORMATION FOR SEQ ID NO:716

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 519 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...519

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:716

```

gagcgagaga tccgaaaagg tggatgcgca ccgaaaagaa agagaatata aacagcccga      60
aaaagtgaga tacagcgtgc agccacagaa aagaaacgac tgcataatatt cacagaaaag      120
aaacgcactg catatatttaa tgtacgccgc gagagatgct gagggcagca ctattcagtc      180
caaagagaga aaacggacgg aaaaggacaa ccattccagca aaccgtttac gcgccacaat      240
tttcttttcg atgctccgca aaacgtggcg cgggaacttt ttcgttttgg ttcggaagta      300
aaaaattctc gcgccacgag gaaaaaattc tcataagact ttctgaaaac acgcgccgca      360
atcagagcaa ttatggttcg agaaaatcag atggaatata tccgcccaag agcgagaggg      420
gtagctatga agctgtaccg aagcctcgat cgccacaata actaccgcaa tcagcgaagc      480
cgtcagagcc agaagagcaa gcatagacca cancgagga      519

```

(2) INFORMATION FOR SEQ ID NO:717

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1205 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:717

```

gggcgggtgcc tttaacaacgg tatccaatca cccgttcggc tctctggatg cattatgttg      60
atcgatatata tcggatcggg acgtcccgat tatagcgttt ggtcaatggt tttctgtcca      120
tgatcagctg cctgcgcgac agcttcaacc ggtggctcca ctcaaaggaa tggccggagg      180
acttgacagc aagcacatgt atccggagtg aaggaggtag tgaaccgtct tcaaaacggg      240
cagccgtcgg cttcttcccg gccggaggaa tatccgtcta taaaggcaat cgcatcgggt      300
gatggacagc gaatggcaag ccagttgtgc caagatgata ctctcagtcg ggtgccggtt      360
tatccgattt tcttcagtg ggcgaattcc tgtattttca ctccctcgga tggctgagct      420
gggctattcg gactccgcgc accctgccga gctattcaat aagcgagggc atattttcga      480
tgtctatata gcgatccgat cccgccagag actatcgctc gcttcgagaa gaatccgcgg      540
agctggctct cttcctctat gaccggactt atcgtcttgc ccccgacca agaaaaacaa      600
atgaaacgct ccaagcaact ccgcatttat acagcttggc ggggtccggc aagactcata      660
cacttaccgg cgaatatctt cgtttaccct gcgtacgcgc ggggctttcc gttatataca      720
ggctgtcacg ttcacaacaa agccactgcc gaaatgaagg agcgtattct cgaggagctg      780
tacatctggc tgtgggcgga tcgtcccctt tcgccgagga gctgatgcag gagtggctct      840
gactaccgag cagctacaag tcagagcaca ggaagtctcg acgaaatact aaacgactat      900
tcttctttgc gagtcaagac cattgactcc tctttcagga agtaatgcgt gccttctctc      960
atgaattggg actgccgggt gttttcggat cgagatggag cataaggccg tgctcgaaca      1020
ggcttgctgc cgtctgctgc ncagcttggg agaaaaagat acctccgacg tngagaatgg      1080
atcaggcggt tggctgaaga cctgatcnaa gaggggctg gacataaatc tcgcaggagg      1140

```


atagtcagct tgggtgatga gcttttnaaa gaacagtact cctgctatcc gaggaaggca 1200
aacta 1205

(2) INFORMATION FOR SEQ ID NO:718

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 574 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:718

```

ggctgtgttg tccggctgtc ctgtcttttt gaatttgacc atgatgaaga ttccggtcgc      60
ttctccggtg tggagagtgt ccatttgta tagtaagata gaaatggata gaattggcag      120
gtgccgactc tgcaatatca agatattcga tgtcttatag gatgcagcag ctgggatctc      180
ttgagcttct gtggtaggaa ccccttcgtt accgaattgc gaaactttgc ctgtatatatt      240
ccgacacttc atatccttgc acattgatgg tgggttttat catgcgaatc tttgtgccac      300
tcgtttgagt ttataatccc ccaacagttt cccttctgtc gtacccatatt gatctgctta      360
ttgccatgag caagcattac gaaatcgga gggctgtcgt agaagagact tcaatagatt      420
tctctaccac aaattgagaa acgcagcttc tgtggccgga gcattgaaat cgagattggc      480
cactacatag tgctgaagtt gttgttgcca ttgaatagtg gtcgcatttg ctctttgacg      540
gaatgatata ngccccttca tggatttgat agtc                                     574

```

(2) INFORMATION FOR SEQ ID NO:719

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 384 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...384

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:719

gggaaggcgt aatgaagaaa gaaattcttt cagcagatta caaaggcgag ttgttcgtca	60
ttctgtagct gattatgtca aagccgaaga cttcgtgaa acattattga gcgtcatata	120
gaagcaagca aatccaacct caaggctcac ccattgtcgt tgccgggtggc tacggagtcg	180
gaagcaagga aaatttgccc tcttgcatga tcttgcatct gtattgggtg gagaagttgg	240
agctttcgtg ctgcggtaga tgctggtttt gccgatcatg acatgcaaat cggaagacag	300
gcattaccgt tcgtcccaag ctctatatcg cttgcgngt cagggacaaa tccagcacat	360
cgccggtatg ccaggganag ctct	384

(2) INFORMATION FOR SEQ ID NO:720

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 216 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...216

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:720

tgtaaggacg acctatttgc tccgcaagggt cgacctaaac gctcgggttag tcgacctgac	60
ttcttgctcag ggtcgacgta tgcggtttat tcccttggtg gtgcggacga gaaggggggt	120
acgaactgga aaacaaccct ttataaacac ccgtttttca aagggtotcat gctgtggaga	180
agagactggt gataagatat cctctccgat ggatgg	216

(2) INFORMATION FOR SEQ ID NO:721

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 524 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:721

ggccgtttcg ggcagatgga tcagataccc ttcagaccaa ctgttcttct ggactccatc	60
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```

gaaaggcggt tgtgtacgga tgtatttagg gagtttggtg caacgagagc gtacgaatgt      120
cggatgagcc gtgcaatcag atcggcaggg catccgagtc caaagctacg ctgttccaat      180
gtcgtttggt catatgaaag cccccgtgat accctcgtag tgcatacctta aatgttcgga      240
ccgatgggat cgcatttgag tgogatgact ttcttttcgg aatcaagggg tatcgagcaa      300
acattttgcc ggctactttc ataaccaacg taacatcatc gaagggaaac tctcctccac      360
ctgtggcagt gacaagcata gctctcgagc ttctctatgt ccatatatta ttttattttt      420
gctacgttat gaatttcgct cacttttgct tggggcacgg tctaacaaaa ataatggaaa      480
aactcatttt gccacaaaca atccacataa gctcaacgag attc                        524

```

(2) INFORMATION FOR SEQ ID NO:722

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1150 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1150
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:722

```

gctcgggtanc catatcatna aaggcaaagt acggacttcg taccgcgtat gacagctccg      60
accggcaaaa aacggtnagc cgtagtcaaa tccatttccc ccggctctga ttatgacatt      120
caaacgctcc ttattcttcc tcctgctctg ctctccgtgg ccacagctcg gggcgcagat      180
agacgtcgat cgggtgtcac gatcgggcgc aatgctctct acttcaacga ctacgtgggtg      240
agcatgggta cttcaaccac gtggtaggcc tgcgcccggt gatggcggaa ccttttttcta      300
tcggggaata gccaaaatca gtctggaaga ctatacaggg gcgaagccga tgcttcggcc      360
tgccctgcagc gcaatgcgct catcccaaaa gctatcttct tcggggcggt gcacggcaga      420
atctgggcaa aatcgattca gcattcagga ctaccgtcgc ggattggagc tgatgccgaa      480
cgatgagggc tgctggtgaa tctgaccgga gtgctcaccg acagcaaacg ctatgccgag      540
cacgggaagg ggtagccgaa ctgctcaaat tctaccccaa aagcaagcag cacatatagc      600
tctcagcgcg atagagctgg gcgagcagga taccgtccag ccattcgcga actgaacgag      660
gtacttcgga tggactctct ctttgccctg cctatttcga gatggccatg ctgcacctca      720
agagcaagcg caacgagagg ctatggcagc cctggacaaa gcaatagaat tggagccgag      780
cgaatgtcca actatatcaa ccgcggtgtc atccgctacc aatcgaacga cttcgtggag      840
ccatggacga ctacagccac gtcgttcgcc aaaagccgaa cgcaagttgg cacgtttcaa      900
ccgtgccttg ctccgctctt acctcggtga ctgaacaatg ccatcgagga cttcgatgta      960
gtcatccgtc tggagccgga aactatcatg cactctacaa ccgtgccatc ctccctcacgc      1020
agatcaacgg aaccgaaaag ccattaccga cttcgacaaa gtgctgggac actatcctac      1080
tttgctgctg gctactatgc tcgctcccaa gccaaaaaag cattggggac actcgcggag      1140
ccgaacggga

```

(2) INFORMATION FOR SEQ ID NO:723

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1022 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1022
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:723

tgtcggnata	tgacaccatt	ttggccgacc	ggtggcaatg	attgtcggta	tatcgaaaat	60
atcaaattga	ctactcctct	cgatctatcc	cttgccaact	gttattgaca	tcctaatacc	120
taaaaaacat	aagttacatc	tccacatgtg	gaagaataca	agacaaactt	aatcgaagac	180
ctcgaaaagg	gctagggcatc	taacgccatg	ccaagtttta	gaactaactt	agctactcaa	240
tgttgactgg	tgagtgggaat	gtgcagattt	tttgatgact	attgcatatt	gaggaaaaac	300
ttatctttgc	agcgtgaaa	gaggtaaatt	cattcgcaac	ggttggtagt	tcagctgggt	360
agaatacctg	cctgtcacgc	aggggggtgc	ggttcgagtc	ccgtccatac	cgctaaatag	420
ctgaaagata	ggctataggt	ctctgaagca	attttagaaa	cgaatccaaa	agcgtcttaa	480
ttccaacgaa	taaggcgctt	tttctttgtc	gccaccccac	acgtcggatg	aggttcggat	540
aggcgtatat	tccgtaaata	tgcctccggg	ggttccattt	tggttacaaa	aacaaagggg	600
ctgaaaaatt	ggttaaccaca	gacgacgtta	agacgatttt	agacgattga	caaattgctc	660
tgtttcaaaa	tcatatgtcg	aacttttagc	cgtatggtta	cactaatttt	ggagcaaaat	720
gaagagtcaa	tttcgtcagt	tttttacttg	cgcagcaatt	acatcaacaa	agaaggcaag	780
acgccatcct	cattcggatt	tatctgaata	aggagcggtt	gtcgcgtggg	tctcaggcct	840
gtctgtcaat	gcccatttat	gggattcaga	aaaagaaaaa	gtaaaggaca	tagtgcagaa	900
gcacttgaag	tcaatcgaaa	gatcgaagaa	acagggctga	tattctgacc	atttaciaac	960
gtttggaagt	aacagtagat	atttgacgcc	ggagaggatc	aaatcggaat	actgcggaca	1020
ga						1022

(2) INFORMATION FOR SEQ ID NO:724

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 542 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...542
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:724

gtctgcaggg	atggtacgga	tggttcagc	ttcatgtgcc	agtatttcga	gatgggttcga	60
ttgtgtattt	ctgccttcac	gtcgaataaa	ttgcgctgaa	aagtatttat	ttaattttgc	120
atattatgct	tttaaggctc	tttctttcac	taaactttat	tcgatttaga	attggaaggg	180

tggctaagca	aaatgcatta	agctaaaaca	ttgagaaaag	ccctgaaagc	atgatagccg	240
gaaggtaacta	tgtaacggat	attccgaatt	tataaatgga	ttatcaacta	tacagctgcc	300
gagcggtttg	catgtggtat	ataaacgcga	tgcgggcgaa	gttcatacgc	cggctttgcc	360
ataggcgctcg	gcacacgcca	cgaaagctcg	cgcacatcatg	attggctcat	ctgacggaac	420
acatgctctt	caaaggcacc	acctgcgcaa	tagccttcag	atcattcgtc	gcatggaaga	480
ggtcgggtgcn	gagcttaatg	ctttcaccga	gaaagaatcc	acctatgtgt	actgcatctt	540
tc						542

(2) INFORMATION FOR SEQ ID NO:725

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 787 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...787

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:725

cggataagtt	ggcacgggct	acatcgacat	ggataaatat	cttcaggact	cgtacggggac	60
naancgatac	tgaggagacta	agcgggtacca	attatccgaa	ggagnaaaaan	cggctggaaa	120
gggnctgccg	ccgaatatga	atcgcgttgg	agtctatcaa	aaaagaacgc	aaacaaatac	180
tggacgaagc	ccgccacaag	catccgtgat	gctgtcccaa	tcgtctgcac	agatagagaa	240
atcaaccgcg	acatcaaaga	ggcacaagcc	gaaagggaga	aaacgcggag	agcagacagg	300
agctgaacga	cttcagggaa	acgatcaaca	aagaagagat	cgaaaagaag	agcgaatcaa	360
tcgggagata	gagaaaaataa	aacggaggaa	aaacgggaagc	aggagaaaagc	agcaagccgt	420
tcggccgaaa	cacctgtaca	gcaaagctgc	aagaagtgcc	ccaacccccct	gtcatacaaag	480
tgggcgatac	gtacgaatca	aaggacagac	ggctataggc	agtattatag	atatgaatgt	540
cgggaggcta	ccattgctct	cggaatgatc	aaaacgactg	tgccgatcat	cggttggaac	600
cggccaagcc	cgtcaaggag	cggaagtctg	agcctgttcc	ggggcatctg	cccgaatgat	660
catagaccgg	atccacgaga	agcgttggat	ttcaagcaag	acatcgattt	gcgtggcatg	720
cgtgtgaacg	aagccgtcca	agcccgatcat	gtatttttat	cgatgatgcc	attccaactg	780
ggaaacc						787

(2) INFORMATION FOR SEQ ID NO:726

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 543 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...543

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:726

```

ggccggtttgt ttcgagacgc agcactatcc cgattcgccg aacaaaccga ttatcctacg      60
accctcttgc gcccgggcga agtggttcgag tcccggaacgc gttccgattc ggtatcgctg      120
agtgatcttc tcacaaggat tttgtataaa ccaatcataa acaagcagaa attatggaat      180
tagacttcgt aaggagagat tcatcaagca ctttgacgga tctacgggtc agatcttcac      240
ttctccgggc gcatcaatct gatcggcgaa cacacggact acaacggcgg tttctcttcc      300
ccggtgctat agacaagggc gtcattggccg aaataaaacc gaagggttcg acaaggtaag      360
ggcatattcg atcgacctca aggactatgt ggggttcgggc tcgggcccga cgatgctccc      420
cgtaccactt gggcaaaagta ttctatggcg tttgtcgcga gatgatagcc cgaggcgtag      480
aggtaaaggg ttcaatacgg ccttctccgg ggatattccg ctcggagccg gcatgtcctt      540
tcg

```

(2) INFORMATION FOR SEQ ID NO:727

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 494 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...494

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:727

```

aggatccccg cccacaggcc gtatttgctt acttgatatt ataatcatca gacaatccta      60
ccatataagt gaacagcgaa ttagtaattg acgttaagcc aaagaggtat ctatggccgt      120
cctggaggat ggcaaaactcg tggagctcaa cgcgaaccgc gcaatcttc ttttgcaagt      180
ggggatattt acctcgtaaa gtgaagaagg tgatgcccg tctgaacgct gctttcgtgg      240
atgtagatac aagaaggacg catttcttca ttatcttgat ttgggcttga ctttgatgct      300
cagcagaaga tgatggagat gatgacaaaa agcaaatcga ttcatccttg tccaaagtgc      360
ccctcggcag cgacctccct aaagagggga agtcgcagat gtgctcaagg ccggacagca      420
gatcttggtg cagatagcca agagccgac tctaccaaag gccacgcct gactgccgag      480
ctttcttttg ggcc

```

(2) INFORMATION FOR SEQ ID NO:728

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 309 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...309

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:728

gggattgaca ccatcttcgt ggagtagctc ctgaatgata tagctgtact gggaggaagg	60
gtcttacgta ccttgaggcg agtatatttc tctgcagctt ctgacacact ttgatcagct	120
gattcagcgt gaccatatac cagtcctcat ccgctcatca ctttgcttca cgagttcgag	180
tttctcgnga ggataaagat cagggtgcac agctcttgct tctgatatat ggcgnaactg	240
accacgaaga cctcgtctac ctttctccga atactaccgg acgcattctt gagccatgga	300
taaaggctt	309

(2) INFORMATION FOR SEQ ID NO:729

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 500 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...500

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:729

gcttatgtcg atctcttttg tcgctcttcg gctctcgtac atgattgcat gctttcaccg	60
tggaatatca gatcgtgggg cgtccggccc tctttatggg aagaacggac gccttcctca	120
cgggctcaac cgagctgccc aagaggcttc gcgttgcatg atatggcaga ttctgcgga	180
gacatcgatt cgtttcccaa aagatagcag agcgcagacc cgatccagta gccgataggc	240
gtcgggtcttc atccgggact atttgctccc tccccgaggg gctactgcct cagagtcac	300
atcgacactt tgctcacatc gcgttcgtaa aatcgtcggg tctcacgccc aaaaacgtgg	360
cgcgggaact ttttcgtttt ggttcgggaa agaaaaattc ccgcgcgaga acgaaaaaat	420
cccacgccac ttcttttcag ctttggttcg caagttcggg cgactttcgg ctcgnaatttt	480
tccctgaacg ctgaatgact	500

(2) INFORMATION FOR SEQ ID NO:730

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 733 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...733

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:730

cgaagggagc	tgtaagctt	catacaactct	tagacttcaa	gactctgttc	ctgaatatgt	60
gcatattagt	gatggtaaag	gacatgatgg	caagatggca	attctattcc	tatcccagca	120
ggaagtatcg	tcgtggctga	ccgtggcatg	ctgataccgc	cttgctcaat	agttgggaca	180
gcacccaagt	gagttttag	tacgccaccc	aaggtcctta	aaatatgagg	ttattcaaga	240
gttggaactcc	cagaacatgg	gcatcagcaa	atactcgtag	atcagagagt	acggtcacag	300
gcgttcagac	gcaaggcaag	tacactaagc	cattgaggca	tatgccctct	acaacgagca	360
acatggcgat	gtcgttgagt	tattgaccaa	caagacaccc	ttgcagcaag	tagtatagcc	420
ttgctgtatc	gttcaagatg	gttatcgaga	ttttctttcg	gaatttgaag	caacgcctca	480
gcatgaaggc	tttcttgga	caacgcgcaa	tgccgtagag	gtgcaaatat	ggaccgctct	540
attacaatgc	ttttgatgg	ctatctcaag	agtatcgcca	aatatcgggg	tgcttgtcta	600
atcttgtctc	ttcgctaaga	atcaacacat	ttaccaaata	gatctgatgc	aatggcttaa	660
tgagccgttt	acgcctccgc	cagagccgaa	aatcagctct	tttagcacat	aggggggatga	720
ccacatttcg	aaa					733

(2) INFORMATION FOR SEQ ID NO:731

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 461 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...461

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:731

gccgatgcac	ttcttcgggc	tgctcggttc	aggcatgttc	ctaactcggt	catagctttg	60
gccgttgtcc	ttgtcaataa	gttgtccgct	ataatcatca	tacgcaggca	cctttggtga	120
cggatcggcc	ttatttcttc	atcgcgcgac	ggcgatgatt	atcggcacgc	aactgttcct	180
aaccggattt	gtcggtagat	gatcagccgt	caggcttcgg	acagaaacaa	ctataaaata	240
gagaagagat	ataatgaaac	agattcctca	agattttcgt	ttgatagaag	atttttccgc	300


```

acgcgcagat ctgtacgcaa gtttatcgat cgtcctgtgg aggagagaag ttgatggcca      360
tcctcgaagc cggacgcata gtccttcgg caataattac cagcccgtgg catttcctcg      420
tggtcagaga agaagagggc cgcaaacgct tggctcctg t                          461

```

(2) INFORMATION FOR SEQ ID NO:732

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 404 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...404

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:732

```

agccagtgtt cccagttata taaaacaacc ccagggatgc ctttactacc ccotgagggt      60
cttttaaata acttgttcca ttgccgnatt tcgtctatgn tcagtcaccc gttcgtcgtt      120
gaatcgggtga aatcttttta catggcttga aagaggccaa gaagccacag acaatccctg      180
ggaagttaggc tataacattg gccaatcctt cttcttacga ataaaaccat atcctaccca      240
cagtagcagt tgatacctgc gaccattggc tgaagccaat caccctttatg tccaagagat      300
tggaaccaat ctgtggaata taagaaacat acatcgccat ancgttgccg tggcaatcca      360
accgagaact gaccaaaatt tttcttggtat tcttttacta ccat                      404

```

(2) INFORMATION FOR SEQ ID NO:733

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 555 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...555

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:733

```

gtgactattc ggcaaagaga tatgaagacg agccactccc aaagtgtcgc acgaagactg      60
acatcggcac gcagttcttt gagatcgaga ccggtatctt ttcgagaaaa gaaagatggc      120

```

gcagctgagc	tttcagtc	gtactgtgc	ttggaaaaga	cgtacttttg	cattcaagtc	180
gagcaatccc	aatgtgcgga	ttgggtcttg	tacaatcccc	aagcagagag	ccggcagttc	240
ctgagaagat	ggtattgata	ttgagtcgta	gccggctcgg	ctcttccgga	ttctactttt	300
cagagcatcc	agaaggaact	gaatgttcag	agcncgtatc	gggcgcgaac	gatatacatc	360
gagttcgcct	ttgaacagac	gagcagagga	gagctcagac	gggctttcaa	aagagggagc	420
agatccagcc	ccccggtcaa	agttcggctg	acacccgcag	gacgacgggc	acgatcgaag	480
atgacaatat	gtcgatctcc	atttgtcggc	caccaaccaa	tgctgatgtg	cccgatgcga	540
catgcgttcc	gagtg					555

(2) INFORMATION FOR SEQ ID NO:734

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1169 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1169

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:734

ttcgccactt	gacatcacgc	gtaatcgaag	gattatcact	cttacgggca	tcttgtctat	60
ctcatcgata	aagacaatcc	ctctctcggc	ctgtttgaat	cgtagtctgc	ggcctgcaaa	120
agtctggtga	gaatactctc	aatgtctccc	ccacatagcc	ggcttcggtc	agtaccgtag	180
cgtcgactac	ggcgaaggaa	catggagcat	tttggtatc	gtacgagcca	agagtgtctt	240
gccggtcccc	tgggaccgac	cataataata	ttgcttttct	cgatctctac	gccacgctgt	300
cctcttgctg	gagcaatcgt	ttgtaatgat	tgtatacagc	gacgaaagaa	aacgtttggc	360
atcatcctgc	ccgataacat	acgaatcgag	aattccttga	tctctatagg	ccgaggcaag	420
tcctctctct	tcagattggt	ctctcttccg	atttgaattt	ttgcaatgct	tctcgaacca	480
cctctcctgc	cggagagcac	attcatcgca	gatatgagca	tggactcctt	cgagcatcag	540
tttacctgcg	ttctcggcat	gccacaaaaa	ctacagtatt	cttcgtcctt	ttctttgccca	600
tgagaaatat	acagtccccc	tttgggtaac	gagaggggtac	tttcgattct	tttcgaggat	660
tttatctatc	atccccgtact	ccaatgttcg	ggggctgtca	tccaatagtc	ccgatcacta	720
tctttttcga	cctgccgacg	ggctttccac	tgtgagaaga	gataatcgtg	taaagctctt	780
tcttaacgcg	agaatctcgc	gagctgcgat	ctccaaatcg	ctggcctgcc	cctcatacca	840
ccaagcggct	gatgtatcat	cacgcgggaa	tgaggcaaaag	caagcgtttg	cctttcgttc	900
ctgctacgag	cagcactgat	gccatagacg	cgccatgccc	gtacagatag	tggccacatc	960
gcaccctata	tactgcatcg	atcgtatatg	ccataaccgg	cataaacaga	tccgccgggt	1020
gaattcagaa	gatggaaata	tctttaccgg	ggctggcgct	atcaagataa	agaagctggc	1080
ttgaatgaca	ttggccgtgt	aatcgtcgat	ctgagtgccca	aggaagagat	ccgatccatc	1140
attagacgtg	agaacacatc	catttgtgc				1169

(2) INFORMATION FOR SEQ ID NO:735

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 495 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...495
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:735

```

ggcgcatggtt tttataccaa tggatagtagt aagcagggat gattcggtat cgtgccagta      60
gaattacaga tcctttccat gcgattcttc atgcttatcg tatgctgac ggacacaaag      120
aagatgaagg ggggcaacta gaggataaaag ggaggggatt tgtagggcg gatttcaaaa      180
aaataagggc tatctccgac agcccttact tccttattaa ccttaaaatc taataccatg      240
aaaaaactgt acaaaaataa ggcgatgtat ttctcgtgca actatattag gccaaaaggc      300
gcatattagt ccaatcaata tttgttttcg gccttatact cttttttctc ccatattcga      360
acgggggatca tacgccagaa agcgacccag taacgatagc gccagtcgaa agtcagcagt      420
cttttttcga cggatgacag ctttactatt ggcttgggca actatcttgg actccatcaa      480
gcattggata ttacc                                     495

```

(2) INFORMATION FOR SEQ ID NO:736

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 522 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...522
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:736

```

ggccaaatcc tgctgtacga tcttttcatt tttcgcagcc agttcggccg aagagacgaa      60
atttcgtttt gctgcttttc caccagctcc atcagcttcg gacgttatac tccagcttcg      120
aaagatcgag ttccctcttc cgggtcaaga ataatccttt tccttacaaa agtaaattat      180
ccgcgccaaa ctggcactaa ttttgtgtac ttgtataaag agtaaataag acagtcatta      240
cggagaaaaa gatttggtta ttttgtctt cacagaaagg ctgctctgca taatgcttct      300
ctatattcaa ggagccggta atgaattgaa aaagagaaga ttgatagaat tgcaaaacat      360
agaaatgcta ccaactcatga cccaccgcct caatcaatcg gaatatcctc ttcgatcgga      420
tatgctgcag cgatagacct catcccggtc gggattgtag agaacgaatc catcagatat      480
gcaaatcata atcgaccgat agcatcatag cataggacaa gc                                     522

```

(2) INFORMATION FOR SEQ ID NO:737

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 537 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...537

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:737

```

cggatcgcgt acgggctccg tcccagcag atagagtatt tcagctatgt agcaccttcg      60
ctttcgatga agctactact ccatagcgta aagctgactt cgtaggaagt tcgccattgt      120
gacggcgagc gtagtcggcc agcatgtctc tgccatcttc ttcccttttt cccatgcagc      180
tgctgatggg gtggcccggc attgatagag aagaggtttc ttccggtagg aagcgtctcc      240
ggattgcgat atagtcgcca cccggcgaag gtgccgtata accgccggag agaggttcat      300
catagaggtc agctccagct gtgggctggt tttgagtgcc ttaagtagaa aggtatctgg      360
gcaatagcat gcttgagttc gctgatgctc gcgccatggc tttgtctttg gaggtaagct      420
ctcgtactgg ctgattcgtc aggccgggtg cttggctttc gacttatcag gcatcatagc      480
tttttgcctt tccgaatgtg ccgcttgcac agaatccttg cccgtgagaa ggcgtttg      537

```

(2) INFORMATION FOR SEQ ID NO:738

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 399 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...399

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:738

```

ggcataaacc tccagcatcc gtctggcttc ttcttcggct tcctcttttt agcatgagcc      60
gtatgccctt cttgccaaag gaattcgggt gtccggagaa aagacgtgta cgcatttccc      120
atcgaactac attggcccac tgattgcgag gataggcaga tcacgggtggc tttgtatcca      180
gttcttatat gtattcaaat gatgggtctc gatgtcggac gtacgatcag ctcttcttcc      240
aacttgcttg cggatccact actacgccgt ctccatcggg attggctttg agccatagtg      300
agttaccacg gcgcattcct tagcaaagcc ttccacatgt nctcttcacg gctcaggang      360

```

ctcttcggga taaaaagagg gaaataggca ttaccgtgt

399

(2) INFORMATION FOR SEQ ID NO:739

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 437 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...437

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:739

cgttacactt	tcagggaaat	acttaagggt	cgtattcaga	gcaaacaaag	ctcttggtgc	60
ccctcaggat	aagacattgc	cacacggtac	atttcggctc	actaagttct	ttcggagcag	120
tcttaatgat	ttcacgagct	tcttcgaggt	ataatcacga	acgatatacc	ccatgggttat	180
cgtattgcga	cgcaaatcgg	atagatctga	tccaagatat	aacgataaga	cgaaagttgc	240
ttcaggcctg	ttcacgtgca	tcantcatcg	gcataattat	cggagttgat	tatcccaata	300
cgcgggtcacg	atcggtcata	tcactctttt	cgatagccag	tttagcccct	tccaattcct	360
cactcgccna	attcagtggt	tatattcggc	aagttttgcc	atacttacgc	accaattcct	420
ncgcgagtct	tttagca					437

(2) INFORMATION FOR SEQ ID NO:740

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 346 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...346

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:740

cgccttagag	aaagtgtcca	tcgctaaggc	ggtgccaaat	taccattttc	gaacaccgag	60
ccaaaaaagt	ctctaatacg	gtgccaatca	caactttgat	actagagaaa	aagctcggca	120
aataggctat	cgactcatcc	gaaaaattgc	ataacaatcg	caagctccga	aagccttatg	180

```
gcgaaccaac aaaaacaaga cagccacctc gtttgcaaag cgaacaaagt ggctgtccta 240
tatgttgtag ggctatggaa accccttata ctcanagaac gggaatcgac gaagcngccg 300
ggctataatc tgcgtcttcn aagtgtactt ctctgtgaac gttcan 346
```

(2) INFORMATION FOR SEQ ID NO:741

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 882 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...882
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:741

```
cgtcagatca ttggtatcct gctcgtctat gcgatgtagt ttttctgcag caaaatatgt 60
cgcgaggctg taaaagaatc caagtcgccc actactgctc cggctctgca ccatagtcca 120
gcaaattctg tatggctcca tcgcaacgac gatggtagct tcaggatgct ccgatgctcg 180
ccggaggata gcaaggggag gattttacgg ggaaattccc ccttagccag aataacaaaa 240
agcgggctgt ctccggagta agcggaggaa agaaaatcat aggtcgatgc tgatgtggcc 300
tgctgttgca tcttgcgcca ccggaaatat ccgagaacgg acaaacggta ttgacggcaa 360
agacgacagt ggtgatattg tcgccggatt taagaaaagg gataagctga tgatattggc 420
tacgaaccag cacaccaggt gtggcggatg cgacgcgcca accaaatcat ccgacaaaag 480
ctgattacag ggcaagcgta tcggccccacg gcacaagact atccgtatag tgggacaacc 540
atagaacatc gggagaaaag ccaccgtagc cgcagcaagg ctgatccaag gacacgcggg 600
gagatggatn cgatggcacc ctcttcgctc cctttcgcgg tggcgaagcc acatcaccca 660
gccgataata ctggtgatca gatagtgaac ttgatgagca cattgccgta gaactgcgcc 720
tcgatcgaga gataatgtag aagagcggca ggacgatccc cacaggccac agccagacac 780
tcgcttatat tcgagataga cccaaataaa attgacgagt gctgctgcca gctgatggga 840
tgagccacaa tgaattggat caccgcgtgt catcatcgga tt 882
```

(2) INFORMATION FOR SEQ ID NO:742

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 474 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:742

tgatgtccgt	gatgatgtgc	ctcatgttca	tgtttgtgct	ccgagcaacg	gcgtgggcgt	60
gagattgttt	tgtttccata	gatttgtctc	ctacacatat	gatctgatgt	ttttgttttg	120
acggcgtgtc	ataatgagca	atttgctcgt	tgccctgcgac	attcggcttc	agtcacgtac	180
ttcagtacgt	tccttttagac	tctgttttag	cacctttgtg	ctccaaaaga	attttgacac	240
tgctcatctt	tattgcaaat	gtcatcattt	tgctgcacatt	tttaccatat	atttgccgtt	300
tcaaaaagta	taacccttga	tttcaggaaa	ttcatcatgc	ggctaaagat	cgagaaatga	360
gccgagaatt	cggtttggag	gtaattaatc	ggcagcctac	ggtgtccttt	ctgtcgtgga	420
ttcggacggt	gcaccctatg	cttgccctctt	ttcatcgtgc	gcgatgggga	gaat	474

(2) INFORMATION FOR SEQ ID NO:743

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 514 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:743

ccnaaggccc	agtacggtaa	ggccgatgac	caaatccgat	agtcgaaatg	ctngnccat	60
ggaggctgcg	ccatcggtga	gaaaattggc	tccgccaaaga	ctaaagccaa	tccgataatt	120
agaagcagta	tgttcaatat	cattgtttat	aatagctggt	tgttcgtgga	atggactaca	180
aagatgcgtt	tttttcttat	cggttgtttt	caatctcgac	tgagcaattc	agagtatgct	240
tctttaccg	gttgtaaaac	aaacgccact	ctgcatggga	tgccgtttgc	atggtgccag	300
ccggcaggct	gttctgtctg	tactttcggc	cggccaacga	tatgcaggtc	agcgatggct	360
tgtacggcct	ctgcataatt	gtcgtcggta	cgttgatgac	ggctacgccc	gtactgaagt	420
cgttccgact	accgcgctcc	tcatagccca	aaggccgaag	cccgaaggt	cggtcgtcac	480
cgtcggaata	cgaaagcgat	gctttccagc	ggtg			514

(2) INFORMATION FOR SEQ ID NO:744

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1428 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1428

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:744

```

caaaacagaa aaactatact acctttgtta cctaaacatt gcgataccca tcatgaataa      60
ctttttcaaa atacacgaca acttgctacg caacctatcc cttcgctgcg taggggattg      120
atggacgaga tcgattggaa cgatagatga tcggtatcaa ggggtgcacga ggcatgggaa      180
aaaccacatt cctcctgact atgcacgcga aaacttcggg ataggcaata gaaaatgcct      240
gtataacaat tgaatcaact ctatttcacc acagaatctt tgggtgaactt cgccgtgagt      300
ttgtcaagca aggaggagag gtactgctac ttgaccaagt attaaatata ccaattgggtc      360
tatagagctg cgtcagtgtg tggagctata ccggacttac gcattgtctt tacgggggtct      420
acgggtgatgc gcctgaaaga aaaaatcccc agctgaacgg actgggttaca tcgtacgttc      480
tgaacggttt tcattccgcg aattttctcaa tctcaaaaca gggctgtcgc ttcagccttc      540
agcttcgatg agattgtatc caaccacgaa cagatagctc cgcgaatctc gagcagggtga      600
accctctcga ctggtttcag gactatcttc accatggtac taccctatat tcctggagga      660
taagaactat tcggagagtc tgctgaaacg ctcaatatga cgcttgaagt agatgtgctt      720
ttcatccgac agatcagcag cgattcctgc acaaactgcg caagctactc tacctactgg      780
gacacgtgct cccggctcgc tcaatatatc gagcattgcy aaggaagtgg acattctcgt      840
acgacgataa ccaactatct gaagtacctg tccgaagcca gatgatcaag gagcttcacc      900
gcgaagagga gacgggtgcc aagaagccgg catgatctat ctggacaata ccaatgtggg      960
atacgtaatc cagccggaac tctcaactat atagacgtac tcaaaacatt cttcctcaat     1020
cagggtcaagg tcgcaacgaa gtatgtttgg gatctcgctc tcaaactcga ttctgcgtaa     1080
tcgccaatat cagtcttgca tcgatgagaa gatgagccgt cgctacaacc cgaccgctac     1140
tatgccatcc agaacatgcy cagcggtagc cgcaactgat cccctctctg ctcttcggat     1200
tctgtacta aaaaaacagg acaacaactg tgaaagccga tcggggcggt cggcttgtcc     1260
tcactttgct ctgaccccta gtgagcagac aaagaatatg gacaaagccg atgcatccgc     1320
aacaccgact ctgtttcagg gtttgctatt tccagaatac aagaccgaaa ttttactttt     1380
tataactaaa aaccaaaatg gctaaagaaa aaaaatccct acttgtga      1428

```

(2) INFORMATION FOR SEQ ID NO:745

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 463 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...463

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:745

```

gaaataacat ttccaaatgg agaactgatt aaggacaaaa agatccggag gaagattata      60
agatgaaatt caagaatcta atttatactg ttccagaaac agaaagcacc tatcttacca      120

```



```

aacaaaatct ttcgatacaa aaaagaagat gagcctatgc aaagatgagg atcatgattt 180
gtgcgaagat gatacgacga acatcgaaaag cggatacacg gtggcgtaga ccacagaggc 240
tccgtacctt tgagctggct attcacatag tcgagagcca tcggattggc cgtattccgc 300
atatcatacc ggctgtgcc a tcgtacctgt tgcggagcaa cttatagaag cccaaccgac 360
caatagcgta ggaagcatcg taatcaaaaa gccgctccga cccaaagcag accgtcccca 420
tgataatgg tatcaaagaa atggctcact ggccaatcca gtc 463

```

(2) INFORMATION FOR SEQ ID NO:746

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:746

```

gcattacccc ctttcagaaa aaagtactcg ctcgataga taaccgacca tcgaaataac 60
ctccgacatt caattgatag aacagtgcag atgccggtaa aagacaagcc gctgctgtat 120
gctcaaactc aggtgggtga aacgtgctcg gacttacgcc ccattccgaa agctccgcga 180
taagagagag aaaggacgga gcacgtatgc cctcaccctc acgaatgaga aatccatccg 240
ccgtaaacgg taataaggac gcggattgaa tgtcatctta gctcgtaact ccagaatcgg 300
tgatgaggaa ctatgcgagg aagatcgagg tcggcattgc tgaattcaga atatcggtaa 360
tactgccacc gaagagactc cacgtctctc cagcggcaaa ggattgcgct cggccagcat 420
cacgcttgtc tccacattga gttgggcaat aggtcgatac tattggtcag acggacaaat 480
ttatcatcgt gcgagttgtc gggccttgtc cgttgagcag ctccatcadc agatcggtcg 540
ttggtctatt ctttcgcgcg tgctgtacaa atcgaaagag cgatgtccgc ggataattgc 600
aaaagccctc tttgcggagg agaatagtac ag 632

```

(2) INFORMATION FOR SEQ ID NO:747

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 569 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:747

tgccaatatg	aacaaagaaa	tcacttttga	taagctaccc	gaagcggtag	gtatctgacc	60
gaacaggtct	ccgccattaa	agaaatggta	tcagcattca	ccctcctgtg	cctgaagaaa	120
aatctctcat	aggcatagac	gaagcgtcgt	aattattcag	aaagctaaac	ctaccatcta	180
tgttttggtg	cgcaaggaat	tgtccctgca	tataagcgtg	gcaagaaact	ctactttctac	240
aaagagagtt	actacaatgg	gtagagtctg	gacgaaaggg	tgcaactaca	gccaatcatn	300
tgaggagcaa	ctggccatga	tgcgtcaaga	ggtgcgtcgt	aaacgaaatc	tatcaagtaa	360
cgatgggcca	tggaagaaga	agctatcgtt	ccnaagtcct	tcttgacaaa	gcaatngagt	420
tgggcttgtc	gttcacgggt	tgacctttcc	tatcagcata	tttccctctg	agatacgaaa	480
catcattgca	aggtacatga	gtgccaaggt	tttcccatcg	attacatcgc	ctctgncatc	540
tngtggcaat	tgctgtgggg	ataggaaat				569

(2) INFORMATION FOR SEQ ID NO:748

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 521 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...521

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:748

ggataagaaa	tcttttcagg	aattattatgc	caccggcttt	agccattgca	tggttgtggc	60
acatcgaaacg	agcacgggtct	gcacgtaaag	agttattggc	ggaagagcat	ccggatgaga	120
cggtagcagt	atttcgcccc	cgattcaatc	atacgggagg	attccccggc	tttgtctatg	180
gagggctgat	tgccgcaccc	ttgactgcca	tggcaatggg	accgcagccg	ctgcagggtta	240
tcgtttcaaa	gtcgcgccgat	ggattcggag	ccgaatctga	gataccgtga	cagcaatctg	300
aatctcaact	atcgccgtcc	taccccgatg	ggagtagact	tgggctacgc	gcccataatca	360
aagaggtaac	ggaccggaaa	gtactgatgg	agtatcgctc	attgcagaag	ggcaggtaac	420
ggtggaagg	agcatgctat	cgtcctgctg	cccgaagaga	agtatgcaa	gcaaacggag	480
agggcaggat	taaaacgcgc	tttgcgactc	aagcatagac	g		521

(2) INFORMATION FOR SEQ ID NO:749

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 991 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...991

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:749

```

cacacctgtg gccaatctcg acccagtact gatataccggt acggctcgtgg acgcgccagc      60
ttgcataatg ctgattttat tgcggagaaa gaccttcaga gggagacttt gtctatgtgg      120
aaaagggtgg agagatcatt cccaagaagt ggggtgtggat acggatgcac gcagtatcga      180
tggcagacct atagttttac agtgctctgt ccagactgtg ctacaccatt ggtacgcgaa      240
caggggaagc tgcctattat tgcccgaatg ccgagggctg cccacagcag cagaaggacg      300
gctcgaacac tattgcgga cgaagacggc agacatcaat atcgcccgga gacgatcgaa      360
ttgctttata gccgcaatat gattcgtaac gtgctgactt ttatgccctt acggaagagc      420
agctactcac tctgcccggc tcaaaaaacg ggctgctgcc aaacttttgg acagtatcga      480
agcctccaaa cccgtccgta tcaggccatt ttgttcggat taggtattcg ctttgtcggg      540
aaaccgtagc caagaaactt gctgcggtct atccttctat cgatgcccgg ctgctgcgac      600
gagcgaggaa ttagtacaga tagacgagat cggggaagaa tagctgctgc tgtacttcat      660
tttttcagcc ttccggcagaa cagggtatga tcgaacgact tcgtttggcc ggtgtatcgt      720
tggaagctga gacagttccg tggcggtttc caatcgttta gccggaaaaa cggttggtat      780
cagtgtacat ttgaaaagcg tagtcgtgat gagtacaaaa gctatggtag aggcaatggc      840
ggacgtatgg cccggatcgg gtttcgtcca agaacttctt tcttcttgcc gggatcggat      900
attggggccc gaagttagag agagaaagct ggaagctcgg tgtgccggct gatgagtga      960
gaaggatttc ttccgctgat gaagaatagg t                                     991

```

(2) INFORMATION FOR SEQ ID NO:750

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 983 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...983

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:750

```

tggaaaacgg gattctatcg catcgccgta ggagccggag tgcctattcg ctcgctgtga      60
tcgactatag ctataaagaa atgagcgtat tcgagctgtc acccctacgg gcaatgaaga      120
agcggatatt gcctacatca gaagtcgtac agggcatcac aggcacggca cccccgaaac      180
tttgcagaat cagaaaaatga tcaaacacga gagctctcag ccattgagag ttgctgtagc      240
tcaatccgga tagactggga ggataagcac gccaatctac gccgaatgga gcgttgccg      300
aagaaacagc cggtatggcg gatgtcctct tctttcccga aatatgacta cgggcttttc      360
gatgaacgta caagctctgg cggagccttt cgagagggcg aaactatcat gagcctgaag      420
agagtgactg ctcgtcatgg ttggctctgt cggctacgat ggccgtacgg gagaacggga      480

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aattctataa	cgtgcctatt	tcgtgacacc	ggaaggagag	gtcttccatc	aggacaagag	540
cacctcttcc	gtgtaggggg	agagcatgag	gtgatgactc	cggcacaaaa	cgccggatct	600
tcaactatcg	cggttggaag	atcttcatca	ttccctgtat	gatctgcgtt	ttcccgtctg	660
gtgtaccaat	acggatctgg	aatacgtctg	ctcgtctgca	tggccaactg	gcctgagccg	720
cgtcgcgccg	tctggaaacg	ctactccaag	ctcgtgccat	ggagaactat	gcctatgtgt	780
gcggatcaat	cggttggggg	aggacgggat	cggctctgcg	tatacgggcg	attggctatc	840
ctttcgctc	ggggcgagta	tcttgccact	tgtgccgaa	gggaggaaaa	ggtggctgta	900
ccatacgctc	gataaggggg	cgatgcaacg	tttcgcgaca	agtccttgcg	tggatggata	960
tggactcttc	gtcatcaact	tga				983

(2) INFORMATION FOR SEQ ID NO:751

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 600 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...600

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:751

ggaagcagtt	ggaggacatg	cagggataag	ggctgtggaa	atgatgaaat	ccgctttgac	60
aagcggcttg	atgagaacac	gatgaagggt	tattgtatga	ttatcatatt	attgaaaaag	120
tactcatcaa	ttcatcagaa	atttcatact	ccgacttcgg	tgggaaacgg	cagtggcatt	180
acagggcgaa	acggaaaggc	agaacacgct	gatataagca	gtagaaaagg	tagtcacggc	240
aagcctgcat	tctgtatttc	caagtatgca	gggggttcag	acattcgggt	gcagccaagt	300
atgccttcgg	agaaacaagt	ccaatcggca	gcaccgatgg	agagccgtgg	ggacttcaga	360
atacaaggga	aagaagtggc	tggggcaaat	gccacgtggt	aagcacggta	cggatatattt	420
caaaagagaa	aataccgtag	ccattagggg	attttincta	cgtttcactc	cgtgtccgnt	480
gaaaatctcc	aataagccaa	cgggggttgca	cccctctgga	cacccctgcc	gagcctgttg	540
catgaaggaa	cgggcaagct	gaaacaagtt	tcattttccc	tctcaccgta	aatcaggaa	600

(2) INFORMATION FOR SEQ ID NO:752

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:752

```

gggaacaagc gagttctcat cacgggagca acgggcttca tcggcggtt ctggtcgatg      60
aagccctgcg ccgtcaatat gaagtgtggg cggtgtggt cccacacagc atcgctcacg      120
cctgacagac agccgatcc gatttgtgag atcgactacc gcgaccgctc cgatattgct      180
cgcttggctg ataagaagct cccgaagggtg aatnccgatg gcacttggtt atccacaacg      240
ccggttaacc aaagctcgtg acacctcgtt ttttagagag atcaatgcag agcaaccaag      300
cgttttctga taggattaca aggggcgaag cactgccccg aacctttgtc ctgatgagca      360
gtatgggtag ctatggagct cctnccgacg acgccaacca ctttcctcct cttccgtacc      420
caaacctacg actgcctatg ggagagcaag ttgctggcgg agcaatatgt gcaaaccttt      480
gtnacaatac ctataccata atacaacca caggagtcta tggacctcat gaccaagaca      540
tctgatggca atccgc

```

(2) INFORMATION FOR SEQ ID NO:753

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 473 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...473

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:753

```

gctcaaaaag ctcaacaact accgatacga gggatacgcc atcggtgcag tctgacctat      60
ggctatcagt ggctgctggg caaaagatgg aacttgagac atcgatcagc ggaggattcg      120
tccacttcga ttatgacaaa ttcgaattgc caagtgcggc aaaaagatcg cggaaggcaa      180
gaacgactac ttcggttgac gaaagccaca ctttcgctca tatacatcat taagtaatac      240
cttattatac agacaagcta tatgaaacag agtcgctata tcctcctgtc gttttcttcg      300
gaatgtctac gcttgccgtg acaggccaga cccatctcgg gggattaagg tgagcgagaa      360
gcacgtggtc aagaaaacgg gacataccgt caggtaaaga tngacctga tcttgacggc      420
cataccgat atgaacagca actgctgatg gtgggtncce ccattattcg ntc

```

(2) INFORMATION FOR SEQ ID NO:754

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 990 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...990

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:754

```

cggccttcgg gaatcgctt actcattccc cggtaaaacg ctccgcctga agaggatgac      60
cggccggtaa agtggcagtc gtatcctgcg caagggcttc gctccgatag tcgtaagcag      120
gacagccgat aaagtccatt ttttcataatc gtcgatagat tgattgtttt actttgtctg      180
tactaaaaag agtcggaccc gcctttgagc gtcactttta cggtgccgag tttcttttgc      240
aggagtgact cgctccctgc atcaccccg cggccgcttc ggaaaggatc tggttttggc      300
ggaggaagca aaggtgaacg aagtcccgac cgttccctcc atatggctcc cacttcttcc      360
agcgcggaga cctcttccga tccgggaata aaactccttc ctgtccgtcc gtatcgaagg      420
cggagagctg aacggaaaacg accgtccgcc atactcgata ctggtgatat gaagcttcat      480
ccggttgccg cgattcgggc ctgtgccatc agtcgggtat gacggggaat ggaaaggctc      540
gcaggcgagc ggactccagc agacggaggt gtacgaagtc tccatgctca ggggtggtgt      600
cctgtccacg accacccgca acgtattacg ggtgacgacg atgccggcac gtcggcagac      660
cggaaaccga agtttcgctc cttatgccgt actcggcgat aaaagccgaa tcgctcatgg      720
gctgatccag agacgaacga ttgctttctt ctccggaaga agctccacag cgggtaaagc      780
cgccgttctg ctgtcaccgc tgtcttgggt gcgggagcat cggccggggc gttctgactc      840
cgggtgtatg catcccgga atttgcatca ccggaggccg ggagtatttg gctgccatcc      900
ggtaagattt ttcgagcagt tcgagatgat catctcctcc tctttttcct cctgaagagg      960
tgcgagttcg gagcgtatca gtccagctct

```

(2) INFORMATION FOR SEQ ID NO:755

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 559 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:755

```

cagctgttca ggtgaagttc agcagaatag tgtgcaagag tatagaattt agagattatg      60
ggttcggata tgtgataacg aggattcatc gttaagttat ccggttttat agtcttgagc      120
gttttggtgt tnatagtctt tctttcgcgt ttttagaatc aatttaatat taatcctttt      180
aaacatttgg cttatgagtt aaacaaaatg tttttggctg gagcattgct ctcatgggac      240
tttgctcttg tagtaaagag ggcaatgggc ccgatccgga caatgcggcg aagtgtatat      300
gtctatgaca ttgtccatgc ctatgggaag tgctcgtgcg ggtacggaca ggatcaagct      360

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aaccctgact accattatgt aggagagtgg gcggaaaaga caaaattgag aaagtgagca	420
tctacatggt gcctcagggt gccctgggct tgtggagagt gctgaagatc ttgatttttg	480
tacatattat aaaatcctac tatagatcct gcaaccacaca atgccatttt gaaacattat	540
gtcctaaaag ctatttttg	559

(2) INFORMATION FOR SEQ ID NO:756

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:756

ggcagcaatg cgactcgata attagcccggt cgaaattcat ttncatggct gctggctgac	60
ggattcgatc cgatctctct gtcccgtaat atgactcgat cacaaggat ggtaacgaa	120
ggaaaacgtc ttttcaaata gaagggatct gccaatgtgg aggattgca aacgtcttgg	180
tgcgataggt actgaacctc tatggatggc tccgatctgt cgaactccgg actgccgaag	240
ccgttttagg ctctgtcca cagatccaaa tcgggactga tcggattctt gacgggacaa	300
tcaccgatc gtccttgcc atcgtatcgg caattttctt tacgcaaagg gattggatgt	360
ggttcgtgca cctaaccaga gtattctgat acggcttgca tggcttgctc tacgtgttcg	420
cgagtagcca ctccgtggg acaagcatat ccaattcatc ctgtacacgc accaaccaag	480
gtagccctgt tctnctactn cttcgaagca ccccggaag gtacgag	527

(2) INFORMATION FOR SEQ ID NO:757

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 427 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...427

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:757

cggatnaagc	cgccgattag	gattaacgcc	gaagactgca	aagcaaaatc	gaattaacgg	60
ctcccggctg	ccaacccatt	tccgggacag	gccactgttt	tctgtttgct	gcttttttcc	120
gtactttgaa	ctgtattttg	gaacaaaaat	attccgttgg	catncaacta	aagaattttc	180
atcataaata	tcccgtctct	tccacctgat	tttgatgact	ttggcttcag	ggcttatcct	240
catggtatct	tggtcggact	ggatattttac	acgagacacg	acagctctat	cgtgtgccgg	300
agttgcgtgg	caaagacttg	aaggangcag	ancgtttgct	gtcaaccata	atcttcgcta	360
caaacttgtc	gattccgttt	atgacaaatc	ctggctccgg	gtgtcntant	nnaaatgggt	420
ccncaga						427

(2) INFORMATION FOR SEQ ID NO:758

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 451 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...451

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:758

gacaacaatc	cgtacgaaga	gagattcgaa	gttgatgtag	atggagccag	ctcaccgtat	60
tcccggccaa	aaaagggtcag	gaaatagtg	gttacgctta	gaaagctata	cagacaaggg	120
cttttagcgg	aagttcactg	tgatgtagga	ttcgatatgg	atggcaaaat	ccacgacttc	180
tccgtgctca	gccacacgaa	acacccggtc	tgggagccaa	gatgcaagag	tggttccgaa	240
cgccgccaaa	aaagaaggac	tgatccaaga	tgtacgtggt	gtacagatga	gtgaactcct	300
ctgactgttt	ccaaagacgg	cggtcagtgt	gatgctatca	cagcgcgacg	atcagtagcc	360
cgagcctttt	tggatgcaat	ggatcgtgcc	taagagggtt	caaagccgct	caaggcagtg	420
cccggacagg	ctcaggagtc	ttcagggcag	c			451

(2) INFORMATION FOR SEQ ID NO:759

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 458 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...458

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:759

taaaaggact	cttaaggac	gactaaatat	gcttttcaat	acgcccattgt	ctttctctat	60
tgtttcccaa	gaatgaagct	tatatattccc	tgaaaacgat	cttggacatc	ttcaaacaaa	120
tactttctgat	tagctttgag	gctaagatat	agtcggcctc	tgattgaata	atcacttcag	180
caatagctgt	ttgtatccca	ttgcatcaat	actaacaact	gatccactta	aatcaagact	240
atccgtactt	cggaatagc	ttgtaattca	ttgtgtttgt	ctgtaactgt	ctctgacaag	300
acttaagctc	acttgatcaa	tccatgccga	gagtatatat	gtaacccagt	cttctttggg	360
agctacgcaa	acgcttgcca	tctatggcaa	tagtttaccc	tctaaatcgc	taatcaagtc	420
ttttccataa	acactgagac	agcgtaaaga	gcaatgan			458

(2) INFORMATION FOR SEQ ID NO:760

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 778 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...778

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:760

ggtcttccga	atacattaat	aggatgtaat	aacggaggat	cagggataat	aattgataaa	60
agcttggtga	agagaaaaaa	aatgccttac	tttgcaaccg	attatgaccg	ctttatgatg	120
ctacaagcag	tcctaacgaa	ctggaacata	ataaactaat	aacgaaatag	caatgtcaaa	180
gatttgctcag	attaccgcaa	aaaggcaatg	gttggcaaca	acgtttctca	ctccaagaga	240
aggacaaacg	agtattcgat	gtcaacttgt	tcagaaagaa	gttctattgg	gtagacagga	300
ttgctggggt	gttttgagga	tatcggtgc	cgggctgcgc	ctctcaacaa	aatcgggtctc	360
gacgctgcca	tcaagcgcg	ggccgagaag	ggttcttaaa	cgcataatca	agggagaatt	420
ctgtcatggc	aaagaaagta	aaggcaatcg	ggtgcagggt	atccttgaat	gcaccgagca	480
taaggagagt	gtatgccggg	tatttctcgt	tacatcacca	ccaagaatag	aaaaaataca	540
ctcagcgtct	ggaactcaa	aagtacaacc	ccatcctgag	acgtatgacc	ttcataagga	600
aatcaataa	taaagaggag	atcagacaat	ggcaaaaaat	cggttgcaac	atttaagaaa	660
ggtgatggcc	gtacctactc	caaggatatca	agatggtcaa	gtctcctaag	acgggtgcct	720
ataccttcca	ggaagaatgg	tcccgaacga	agctgtaaaa	gacttcttta	agtaaggt	778

(2) INFORMATION FOR SEQ ID NO:761

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1804 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1804

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:761

```

cagtcgaacg agttgtggga gaaatctgct gctgcgtttt cgggaaagat gctttcagcc      60
tgctgctttc cactcggagg cgggtttgca aagaatacga tccttacgat agttgtagcc      120
ggcataggct gctccgatgt attgatctgg cggaactttc cgttcgacgg attctgtgca      180
tatagagagc cgggctccac ggagcatctt cggatggtcg tatctcatag agaggatcgc      240
tcgtgcatga cgatagatgt acttcagccc tgcttccaaa gaatgtgctt gtccaaggga      300
cgtgtatagt ccacttgtgc cgtatgttcg tccatgcccg catggatttg gagtgtcggc      360
cggcgctactg gatcgtatta gctgtgttga gcgatgcgc ttccatttgt caatgaagggt      420
ctcgtctatta ttaggattgt ggtgaagcgg taggaaacgg tgagcaattc gcccggcagg      480
cgagtgtctgt ctgatagtcg gcattgagct cgtatgatcc ggcattccatc tgtgttttgg      540
ttttctgtct atgtaggaca tgaggttgct gccggcaaag cttttttcac gctgttccgg      600
tcggtggtea tctcccaaag gcgtacattg cgcgccacgt aaagagattg agcgaatcta      660
tctcgaatga gaggagggca ttgccagtg tccgccaag gtttcttgcc ctttgccctc      720
ttctatcggt tggagatgga tgtagtacgt tcggtaaagt agcgagagcc cttgtttttg      780
ccacgtagta gttatagttg gtagtcagcc cgactttgcc ggactttgcc gtcgaaagat      840
actaccgttg gctgtgggat tgttgctgac actggcctg atgaacctga atatccttcc      900
agcttcttac cttcttccgt gacgatgtcc agatggcact tgtgccttcc gcatcgtact      960
ttacaccggg atcggtgatg cctccaccgg tttgatcgta tgggcaggaa tggagcgaaa     1020
gacctccttg ggttgctgct cccatgggct gagggcctgc cattgaggtg gattttgagt     1080
tggaagatcc tttcacctgg atattgcctt gacctccac cgttaccaag gaacgttgcg      1140
cagcatttcg agcaggttgt tcgtcttggc tgcgggtcat ctttcatatt ataggacagg      1200
cggctctatc ccatcttcac cagtgtcgtg ctgccgatac ggtgacggtg gagagtgtgt      1260
tgtcctcgga ttccggagaaa tgcgatgga tttgatgtcg tgctgtccat tccccgact      1320
aattgcatgg tatgggtttt catacctacg aacgaagctg tcaggtgata gggggagctg      1380
ccggcaggcc tatgacgaag tagccgttgc cgtcagtcac tgcggaaca cctgtgtggt      1440
atctgtcctt gtcagccgga tgcttacagt gcatagggca ctggttcgcc ggaggaggca      1500
tccttgatcg taccggatag tgtacatcga gggattgtt ctgtgccatc aaagaaagta      1560
tggacagacg aacaggaaaag atgataaaac gattcgtttc attgcttgga tgattgtggt      1620
ttattgtgta tgtatcggct gttacctgtg gcaaacactt taagtatttg cttgtgaata      1680
gtctgtagtc gaaccccttt cctttatcag aatgccgaaa agaaggggta ggagagaggg      1740
agtcttccgc tccgccccca ttggggcgac tcgcgcaatg ccgcaacggg agcggataag      1800
aagg                                             1804

```

(2) INFORMATION FOR SEQ ID NO:762

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 650 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...650

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:762

```

agagttttatc atcaacctgc aaacctgaca ctctccatta tcctttgogc aataatgaga      60
tagccattct tgcactacc gaaatatcat ttgagaaaca catatcgct gacaaaactt      120
atccatattg ccagttgatt ctcaatatat agctctcagt gtccgagagc atttgtagaa      180
gttccttttt cgttatattt atctctattt atcttcattc gtatcggata atatttgctc      240
ataaatcaac accctaattg caaacatata atacattcag aaaactttgt gtttacttac      300
aaactaaatt ggttttgaca aggaggttta tatctccttg tgaagacagt tatattattt      360
ctttgtattt atcatactta ttcccagtggt ttatacacat tctctaaaca ttgacgaaca      420
aaattgaggt tctcatgcga gagtttaact ctgagaagag cagctgttga aaaccttgaa      480
taatctcatt cttaaagggc catttttgaa tatattaatg aatataattt ttatctcaac      540
tctttttgat tagtatcaag ttgtgtttgt acaatcatat ccactaattt acacatggca      600
tagcagaaac catactggat attttctaag caattagata ataattatct      650

```

(2) INFORMATION FOR SEQ ID NO:763

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 543 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...543

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:763

```

tgctcaacaa agcagccaaa gctcgtatcg accagtatac caaaactgog gtatcggtta      60
cgaattgcta tataccgagc taaccattta tttctcagtg gacgtgtctg ctcatccaac      120
gacaagcaag tgcatagcgt actggaggtt caggcgtcaa acgcaagtct tttgcaggag      180
ctaccgagtg gtattctgog acttagcaac cgtcaagcgt gccatctcag ccatcaagga      240
gggcaggata gcttgggggc aagcgaagtg acgctatctg acaaccccat tatttgogtc      300
ctgagcagaa agaagccatc gagcgcacgc tcaagcagtt ccgaaaggaa ataagatgct      360
gtggaatgcc aagatgogtt ttggcaaaac gogtgtgccc tgggtgttgc caaagagatg      420
gaagctgtgc gtacgattat ctacgcacat gccoggtggt agatgccagc tgggttgagg      480
actttggtta acctntnacg accgtcctga gtggcactat ggctccogta gcaaagggtg      540
agc

```

(2) INFORMATION FOR SEQ ID NO:764

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1074 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1074

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:764

cggtgccggt atcggttgga cgatggcaca agcgtgtcaa gatgatacaa tgcctcagat	60
ggtgcccttg cttaacggtg tcggaggggc tgcntccgct tcgtggggat tttgtctctc	120
gcagctatag gaatcaatcc gaataatata cggctgccga ctatccgac ttttcgcaag	180
ctaccggtat gctggcctga ctgtcgggtat gattaccctc ataggtagcc ttatcgccgc	240
cggtagctac acaaactact gcctcagaga ccggtgatat ggcctaacca ctcgtgttta	300
cctctttgct actgatcctg accgtgggat tcgtggtgct cggctctgtt ctatcgaagg	360
gtttcccctc ttctgggcta tcatcggagg acgtttttct cctctctctt cggtttgttc	420
ttctctatcc gtgtcgggtg acggatatgc ctattaccat ttcgctactg aactccctta	480
gcggtgtggc ggagccattg ccggtatggc tgtgggcgat attctactcg tagccgtaga	540
ggtattgtcg gtgccagtgg tctgttgctg acgcagatta tgtgccgccc atgaaccgca	600
agctcatgtc cattctgatg gcttcgggag caaaagcaca cctgccgcta caacgccgac	660
tactgcttca aaacaagaaa aaggagggtt gccgctcctg ctcccgccaa agcagagaag	720
acagccggta gcgtatgcgc gatgccaaagc gagtcatcat cgtaccggt tacggtatgg	780
cattgctcag gcacagcacc aagtaagaca gctggccgat aaacttacgg ctacggtacg	840
gaagttcgct atgccatcca tccggtggcg ggtcgtatgc ccgacacatg aacgtgcttc	900
tgtgcgaagc cgatgtgccc tatgaccaac ttctgagatg gatgccatca acggagactt	960
cgctcagacg gatgccgtgg agtaatcggg gccaacgacg taatgaacct tgctgctcgc	1020
aatgctgaag tacgcctata tacggtatgc ccgtgctgaa cgtggactat gctc	1074

(2) INFORMATION FOR SEQ ID NO:765

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 529 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:765

agaggctcta ccttttcatg ctacagactt ttctgccact cctgctgata cttttgccat	60
ctgttggttt gtggttttga tgcagtttct gtggaaattg tggacgacat ggtcggcaaa	120

```

ggactgagtg ccatcatctt gtccaagtgc ttttctacgc agccatgacc ttggttccca 180
tggcactccc gctgggggtcc tgttggcctc attgatgacc ttcggaatt tgggcgaacg 240
cttggttgc tcgccaatgaa gtcggccgga gtaccgctct accgcatcat gaaactcttt 300
tcttctctgt ggtagccatt gcttgcgggc ttttcatctt tcaaacgato tgatgatcca 360
gtcccaagtg aaattctaca cgatcctgtt tttgcgagaa gggcgactcc ggaactggaa 420
attcccgaag gttctttcta catggtattc cgtgggtaca atctctttgt agccaagaaa 480
gatcgccgca gggaatgctc cacgacatga tgatctatga ccactcttc 529

```

(2) INFORMATION FOR SEQ ID NO:766

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 654 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...654

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:766

```

acaataaacg cttctcctat aatgagcaag ccaataaagt ggaggaggag tactgggaag 60
attcgttcag tatccgctca aattggcttg ggcgatcagg tacacaagag ccagggactg 120
acgttcgata gtgtgatcat cgatttcggg aaggcacctt tgccggcggt caggcctatg 180
tagctctcag ccggtgcgtt cgctcgaagg tatggtgctg cgtgcaccgc ttgccggtcg 240
ggatggatcg tccgtcgtga gatcatcgat ttttattcgc gagccaatga tttgagatca 300
tcaatggctc actcctgcgt gccgaagcag aacgcgagta tgccaagccc tccgactgtg 360
gaatgctcgc cattatacgg aagccatcgg tgcttttcgc aggcattagc gaggaagaac 420
gaatggacga cccgctnttt ctgctgctg tgagtaagct gtcgaatgga gtacgcacgc 480
cgtcgcgagg agagctgcgn gcgagtggcc gagcaacgcg aggtatgcgt cggctggcca 540
gaatatgtgc tgatgggcaa tgactgnatc acagagctca tgatgccctg ctgctattcg 600
ctgctacgac angcctacgc tctaccccga ctatgtggcc tagtcaggaa aggc 654

```

(2) INFORMATION FOR SEQ ID NO:767

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 550 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...550

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:767

```

cggcctccgg acagtaaaat gaaacaatag atatgatgga aagcgatgaa taaaaagcat      60
tcaagaaaac ctcaaagata ttcagggggg gttatcgga  tacatggttt tatgagagac      120
ctgaaaaaag attacagccc ggtggataaa gcatcagtcg ggattcgagt atgctcgcca      180
tgcttttgaa tgtctcccta ctactgttta ccgatggaga gcaaggaatg agttgcccta      240
cacgatctga gcagcggagc atgtgcctat cgattcgcg  nagtgtacgt ggccctcaaat      300
gtggccggtt aagagcccg  ggattcaatc ggatagaggc attaggactt tatccgtcta      360
tcgggacggg atcatagagg gtggtggttt tgagcaaagg aaaaagaccc tngattcata      420
tcaaggaaca aatactggga agaacggatg aagggttgn  ttgtattcaa ctactatatg      480
ccttttcctt caagcccgaa gaagaaattt caaaacccgc tctacgaaga caaacgagct      540
tcctggtata                                     550

```

(2) INFORMATION FOR SEQ ID NO:768

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 343 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:768

```

agctgaccgg gtagcttccg aggtatggga ccggcaaaag cagtcaccgg gatggcagca      60
atggaactgt cccgccgtat cccttcgcaa gagatgcccg cagagaatcc attaccgata      120
gtcgaatggc ctatogaact ataagccatt tctcacagac ctgccgcagg aagaaatgtg      180
ggtgttactc ctcaacaaag cggaaagata atcagcatgg agaaccttan ccgangaggt      240
gtatcgagac ttcggccgat gtccgtctga tcatgcacaa agccgtctct catctgcctc      300
ggcnatcatt ctggcacnca atcatccttc angaacggta cgc                               343

```

(2) INFORMATION FOR SEQ ID NO:769

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:769

```

gcgaataggc ctgacaacac cgtagccata taggctatca gcacggtgaa agaagcatcc      60
tgccggcacc tttcccgatg tcggcaatag ccaccgtccc aatccgagga taatcagcgg      120
aatggagaag ccgagcgagtt cgctgaaaga gcattgaacg tgacgaagat ccgaataaac      180
gggaagctga agaggtgccg aagccgatac cgaggacaat ggccaatatg atcttgggca      240
agaggcgatc cgtagtttac gcatatgggtt ggggggttget tgatcaagaa gatttttgtt      300
ggaaatatag cggaagttag catccagcag acgacgggca gcgcgaaact cctggcacga      360
tcttccaaca cgtctcttcg actccggtat gactctg                                397

```

(2) INFORMATION FOR SEQ ID NO:770

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1080 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1080

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:770

```

atggtttgcc cgtttctaag agatatTTTT tcgtcgtggg tagtgtaact acatatgaaa      60
cgcgccagaat gtagtcaccc tcctgtgacg ttttcagggtg aacaaccctt tttcattagt      120
ggcacctgcg gcaacggcta cttggccgta ctctgtacaa gctgtacgtt ggcttgaatc      180
atggggttgc cttcttgtcc aatactctac ctgctactcc ggcttggttg gcttccagcc      240
cgacgaacca agagaagcaa ggagtattga caacagtaat tgataaatcg atcgataaga      300
aaagtttgaa aagaaaaata ggtgctatcg ttcccattct ccgaatggta ttttacgatt      360
taccctacna ctgaaataga gaggaaaaga gaataagttt aaaagaccat gtcgattttc      420
cacattcgga cctccccgca atgtcgggaa acggcgacaa gtatcaagga gcaagtcgga      480
tggcattctt tttggtatta tttgcctcaa gggagcaaac atgtatctat tctatatatt      540
ccgctcatgg aaaaagggtg agaaattccg tcgaaaagta gtcgcttaag agaaatcacg      600
aacgaaaaat gatgagattg cgtgcgatt tttggggaaa tacgcgccta aattttttcg      660
ttttggttcg taattttttg acttctgcgc caaaacgaaa aattttctgc gccacgtttt      720
tacgatccac gcgcggcatt ttttcagacg taaaaacgtc ggagagggaa atgccctcca      780
tctgtgtttt ttcgttcccg cagtggagga aaagctcgga tggagagacc ttcggacaca      840
gacccgggga gccgtctttc tccaaaaaca cgtatctttt gggatttttag ctgcaaccgc      900
ccgattatta tgaagcattt tttcagtgtc aacgcggttt cgtgccacce tataagaagt      960
atgtggcatg gagcgtgggt ccaatacgct gagtgcactg ctcaacctat tgtctttctc      1020
tctgatcatc ccattcctgcg tatcctcttc aggatagacc ggcaggtgac caottacagc
1080

```

(2) INFORMATION FOR SEQ ID NO:771

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 576 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:771

```

caggaaaggc catcggatan ccgggccgta tcgaggacat agcgagtata cccgtactgc      60
tgtcgggtatt gagatacatg aagtttgcc tccaagcgatc ttttgatagc tcacatagct      120
cttgccgaaa agataggcac gatttcttcc gagcaaaacg atggaatcgg cagcttcgta      180
ctcccactat atcttcaatt cgaattcatc gtcatacacg gctatcttgc cgcacgcgac      240
cgggtgaatc ggcaggaagg gaatctcgaa aagcactgtc aggaataggt tttggagagg      300
caccgtgtct ttcgctgtag aatcagacag cgcagcatgc cgagggtggg caatccgact      360
gtccgggcca taggacgttc cgcagcgacc aagtagcaca gagcaatccg acaaggatta      420
cgggtaataa ccatgaaagt cggaacagag atcggatact ctcatcggga ttcattcata      480
ctcacagggt gcaaaggtaa aaaagaagtt gtaatacacg atgaggttgt acaggctgcc      540
cggggccgac gcattaaatt ggtttgcggc ttcatt                                576

```

(2) INFORMATION FOR SEQ ID NO:772

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 376 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...376

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:772

```

taatttcttt tcatggcatg tggggagatc ttactcccca taataagccg gatcggtcgg      60
tagttttctc tttcccgaaa atactatccc catgaatcta catggtacat ggaagggagc      120
ataggctctg agaatatctt ccggctctgc gcatcgaata ctcccgacgc ttcaccaaat      180

```


tacaaacgac	tccgaaaaat	ggggagtcg	tgctcgcttc	cagatcactt	tctgacctct	240
aaaggaagag	gaaatgccga	aacttttcgt	tctgacattt	cctcctcttc	gaaggattct	300
taatagaatc	agagcttgat	gaacgttcgg	ccggtgttgc	tgcttgaant	catgagtttg	360
atcacatagg	cccccg					376

(2) INFORMATION FOR SEQ ID NO:773

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 854 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...854

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:773

ggatcttgcc	gacgaaagtg	gcctgcttct	gttctatgat	ctcgatcacg	cggcttccgg	60
cgcgcgacca	cgacgttttg	caaagagttg	tactttcatt	tgtcaccgtc	catggcatgt	120
gccgaatttc	tttcggcaat	gaaaatggcg	ttccgcccc	ttcggaata	aacgaattgc	180
ggccattgaa	ccgacgtcaa	aagtgcctat	gacaatcaat	cccaaggcat	tgtaccgata	240
gcgtcgcgt	ctatctcatg	caggatgtca	tccacagcca	tgtcttccat	caggagttca	300
ccattagctt	ttgtggtgca	gcttctactc	ccatcagatg	gctacctgct	tgtagttcat	360
cacgctctga	ggattgcttt	ggaatatgtc	caaatggcat	tgcgcatctc	ctccttggtc	420
atgcgcttgt	tcctacggcc	gcacggttga	tgcgaggagc	gtctcccttg	cgggctttag	480
tcttgctttt	tctttctttt	tactcattga	ttcttttgtt	cggaaacatc	tccccctgca	540
ataatcggga	agatgcgatt	aactgttcat	ttcgaggata	gacctcatat	ttccggtgta	600
ttgctcagac	gaggcacttt	gtgctgtcct	cccagctgcc	ctgctccgta	agccaatcgt	660
ggaagagacc	ggagcgagcg	atcgtcggga	gagtgggagc	agagtcatgt	ctgcataccg	720
cttggtctcg	tagtcgaatt	gagcgtttgc	aactcggcat	ccaatgcttt	ggcaaacgca	780
ttcgatcagc	cgggtgcagag	acaaattcga	tcagccagtc	gtgccgtcct	ttgcctcttc	840
cgaaaaaaag	tggg					854

(2) INFORMATION FOR SEQ ID NO:774

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 518 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...518

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:774

```

gtcgttgatc agtcccacta cgcgacaacc tttaggcgta tgtttacgga gaacttactg      60
cttggctgga agattatagt cttggagaaa tttgggagaa aatatcattg gtggacaacc      120
ttgggctaag tagtgagatg gggaatagaa aaaacggctt gtttttattg tcgagggaga      180
tacagagggt gccttttcca tgaacgtgtg atcccatacc taatgagcaa aggctaccgc      240
aatgcatgaa tgcccagaag atcaccacca ataaatcgct tcataaaaag ggtgtatagc      300
ccgcttcgaa tacttggaag atgaagttcg aagcgtagca gcccaaggaga tatcttgatt      360
actactttgt tagacttctt caggctacca acaattttcc taactatact gcg gatagcc      420
ataagatttc ggatatagag caggggggta gacaaggat tgtgggggta aatggttcgc      480
tttctatcc  tatattcagc gccacgaact agaggcac      518

```

(2) INFORMATION FOR SEQ ID NO:775

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 465 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...465

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:775

```

gagccagatc ttctttggtg agccagccat tattgtaggc aatctcctca agcagggcat      60
cttcaagcct tggcgtttct ctatgaccga tacaaaaagg aagcatctgt cagtgattcg      120
tgtgtacctg tatccagcca ggcaaaacac gccccagttg ctggagacgg agctgcttgc      180
gaagcatgaa ctctgttga ctgaggttat ttccaattcg ccccgcgccg atggtttgac      240
atctgtgcta catcaagtac atcattggga tagaaataga gtcccactac tgcgagttgc      300
tcttcgggct ttccgggttt tcttcaggc tgatgaactt gccgtagcat ccacttcgcg      360
tacaccgtat cgctcaggat cattcacata atgccgaaa tggtggccat acccttttcc      420
gcatcggcaa ctgccgaccg agcatttggc tgaagccatg cccgt      465

```

(2) INFORMATION FOR SEQ ID NO:776

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 530 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:776

ggtgtctgtc	taatttggtc	tcttcctctc	ggatcaacac	tttcaccaa	ttgatctgaa	60
gcaatggctg	aatgagcctt	ttactcctcc	accggagacg	aaaatcagct	ctttgaatag	120
gcagggggga	tccccctaaa	atcaaaaatg	atagtcctcg	agttattcca	ctccgggact	180
aagaactcgc	atccccctaaa	aaacattttag	gatactattg	gtctataggt	caaattgcag	240
gctgtatgat	tgagttgtgg	ttctatagat	caaaatctca	aaccaaatac	tccaaaaatg	300
gcgcgagaat	cttttcgttc	cggcgcgaga	ttttttcaac	tccgaaccaa	aataaaaaatc	360
ttctcagacc	acgtttttca	gaaccgaaat	accgtcaagc	tattttcaga	agcgatacga	420
cattgtcatt	gctaattctga	attagagcga	gtgagttttg	cgggtgcagg	agattccact	480
tccaacacat	ggcgggattc	gggtcgtccg	ataccattcg	gccaaaatat		530

(2) INFORMATION FOR SEQ ID NO:777

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1115 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1115

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:777

gagggctttt	attcataatt	cgtcagata	taaaacgaga	gttaattcag	tagccgattt	60
cgacgaatag	tttcttccaa	cattcataga	tatttgccga	gagtaggatt	tgaccatcaa	120
ctctgattct	tgtcccattt	tcttacgaga	gtttcatcat	ccatcaataa	gcgtaactta	180
tccgcgaagt	cttcattgct	tccattggca	caaggaaacc	attgcgaccg	ttttcgatca	240
gttcctcggg	ccggctggac	aatcgtatga	gattataggt	agtgcataatg	cttcgcttcg	300
agaagtacca	ttggtagtcc	ttcgaaacgg	gacgtcatta	gataatagca	gatgattccg	360
tagtatttgc	gaatttccgg	tgtagatggg	attatttcta	tttgcgactc	catattgcga	420
gatgcaattt	ctttacgtag	ctcgattcat	tttcgccatc	tccgactatg	ataagcttcc	480
aatcaggcct	tctcgcagca	ctcgtgatgc	atcttctatc	atgaattcaa	aacccttctg	540
taggttaagc	ctgccaatcg	ccaacatttg	tttgtgagta	gtagcatcct	ttggactgta	600
gtaaatgaaa	cttgattggg	tatgacatat	gctttaggcg	tccacgtaag	attgcctcga	660
acgattgctg	atctcttttt	gtcagtcctac	aacggcatca	agccctgaat	acagaaaccc	720
ccttatgcgt	tttgtatagg	gcgggcaata	tcataagaga	tatgttcgca	tccgatcgta	780
aatatctgcc	tctgttactg	atctgagaca	aaattgtatt	gataaaaaata	ttatccctat	840
caataaaacc	ggttcacgct	tcttgtatag	ggcttttatc	ctcgataagc	cttgaaatat	900
actgttttgc	gggctaattgc	attgccataa	acctaattcc	gagatggtgt	acttctattc	960

```

ctttttctac ttggaaggaa gctctccttc ttttgtacaa acgctgacta atgatacgcg      1020
atgaccattg catgcaggtt gttagccaag ttgatcacgg cgcgttctgt accggcacgt      1080
ttgttattgt atctaacagc agataaatca tagag                                     1115

```

(2) INFORMATION FOR SEQ ID NO:778

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:778

```

gcgatgggtg gattcggcgg acatcatccg gcagatcgaa tctttgtcgc cgagatggag      60
cctgccgtcg ccaagatcgg cctgatccgc gactcggaac cctctctctc gtagtggatt      120
gtttgaaaaa ggttttcccc tcgattcgat cgtatgggat cccgtactca gagcttcggc      180
cgacagctcc gcgggaaagc ggatcgtttc aatcttgaag atataacggc tttgtcccg      240
atagattcat cagccgaat cttcccgaag ctgccacct tttgggctgc gaacggacga      300
tgagacctg ttagacttct atcgaaggag ccggtgtcgg cctgtcctca agggggggca      360
tgccggagaa tcgggtcgaa cggatncgna tctttacgac ggtcgatgcg aagctctccg      420
actcttacgc g                                     431

```

(2) INFORMATION FOR SEQ ID NO:779

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 471 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...471

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:779

```

tcctgcgcaa agagggttat ccgcgccatg cactggtttg cgaacgcaa cgggttcagg      60

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attgacttcg	gaagacattg	cagccagaca	gattgcactc	ctccgggtat	ttatacccct	120
cagagtattg	aggagaaaaat	tgtttgatg	ccgataagtt	tttctccaag	acaaaactcc	180
atcgtcagaa	aaagctgaag	acgtcaggcg	cagtatgctc	tcctacggag	ccgatagcct	240
ccgcctttcg	acgagatgca	cgccttattc	aaaatcccat	taggataaaa	gtcaaggaat	300
atcaggaggg	tggcccgaat	aatctaaagg	attctcttcc	tgcgaaaatc	tgctttttga	360
aatagtacag	aagcctcata	atcaatggat	cgtgaccgac	aaattacctt	ttgctctcta	420
ttcgcggtgc	gtcaaagccg	gaaacgtttc	tactacatgg	tgccaaacgc	g	471

(2) INFORMATION FOR SEQ ID NO:780

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 651 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...651

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:780

gaattcttta	tcgtctaacc	atttcgggca	caagatcaat	acttccaaa	tagcttatga	60
gcaagatcag	cttcaaaaac	gactattctg	aagggtgcgat	ncgtacatac	tgcatgcgct	120
gacagatacc	aacttcgttc	cacaagagga	tacggctatg	actcctattg	cgaggaagcg	180
cgtgcgatga	tccgcctgaa	tgcaataagc	ccgatgccga	ggtccatttc	gtatcgggtg	240
ggacaagacc	aatctcttgg	caatcagtca	cctgctccgt	ccgcacgaag	ctgtatagca	300
gcacagtcag	ggcatatcaa	cgtacacgaa	accggtgccca	tcgatccacc	ggacataagg	360
tttgcacagt	acctaactcca	ctcggcaaac	tcgtgtggag	catatccgcg	aagtccttgc	420
ttttcatacg	gacgaacaca	tgtaaggccg	tccatggtct	atatctccca	atccacagag	480
ttgggcacac	ctattctcgt	catgagctgt	cggatctgtc	caccttttgc	cgtgcaaacg	540
tctcctactc	taccttgacg	gtgcccgat	cggttcggcg	atcatggnga	gacagaggac	600
aatccgaccc	tgaccgatat	agccaccctg	accgatgggt	ctacatcggc	g	651

(2) INFORMATION FOR SEQ ID NO:781

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:781

```

tggatttggc acgtctatgc ggcattgcaac cggctgcagc cctcatagaa ttatcaatga      60
ggacgggtacc atggcacggt tgccacagct atgggagggt ccaagcggtt tggactgaag      120
atcattgccca tcaaagatct gatagccacc gctcaaaca agaattccatc gtagaaaagg      180
gtgtagaagt ggatatccta ccgaatacgg acacttccga ctcatacctt tccgtcaaaa      240
atccatggac tggagcacat agctttgttc aaggggacgt gggacgaaaa tgaacgatac      300
tcgttcgtat gcactcatcc tgtgccactg gcgacatatt cggctctatgc gttgtgactg      360
tggcggccaa ttactgcaag caatggagaa gacgagaaag a                          401

```

(2) INFORMATION FOR SEQ ID NO:782

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 361 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...361

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:782

```

gggtgtgaag atcgtatcgg ccggtataga gagggagagg acttcatccg ctgcaaaccg      60
aggaaaatgc tcagggacat ctccgctccg cgcagggcgt acggctcgaa agaattgccg      120
aagaagccga agcgtagctg atctccaggc tcgcaattcg ttttcggaca acttcccgat      180
cttctttttg gcacgcccac ttcgaccagc ttcgccgtgt tacggagggt ggtctccgca      240
ttgtttactc ttcctgtgcc ancagggcgg aaaagtaatg atctatacag cttagctcac      300
ctcctccgta ttggcgacga atcgccggcg agcctcttcc ntacgcacgg gttcttatgc      360
g

```

(2) INFORMATION FOR SEQ ID NO:783

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 577 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...577

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:783

ccaaacgatt	ttgcttctgc	accacgtaag	tttcggtgct	tttgtctctc	attttccatt	60
gcctcctcca	agagctccac	acaagatata	gtccgaagg	cttcttggt	ttcttaaaga	120
gtgcgatcgg	tcagaaaaag	acgaacccaa	atcagaagaa	agtgggtccg	gaaatcctga	180
aaacacgcgc	gaaaaaattt	cgttttggtt	cggggaacaaa	aaaattctcg	aacccaaaacg	240
aaaaattctc	agaccacggt	ttgcggagct	atactcggca	aaatttacga	acgaaaagcg	300
tgcaagatga	gtatgcccc	tctcgctgat	tttgtatcgg	aggggtagag	agttttgtca	360
gagggcttgg	ccatctaaac	caaacggctt	gacacagagg	actgagggtcg	gtggaaaatt	420
gccttacttt	tgggtatagc	ccgccaccgg	attcggcgaa	gaaaggatct	gcaaattggat	480
ggtttcgcag	atcgtttagc	ttacgggttc	gaagtcgagt	tgctttctgt	ccagattggt	540
tgggcaacac	gttacggtga	tggcatcgcc	cagactg			577

(2) INFORMATION FOR SEQ ID NO:784

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 394 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...394

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:784

cgagcgagat	atattcaaga	tcgactatgc	ggaaaggctg	tccgcactct	cataggacaa	60
ttggtgcacg	atttcggcaa	gaccacacct	gccgaattga	tgcaataggt	ttcttcaacg	120
cagaagaaat	acagcccaat	ggcaatttat	gatcgatgac	aaagggtctca	catactgttt	180
caatgagtat	cagatactgc	ttatgccaga	ggtgctgtct	atgtccgtct	cggatatgac	240
gtattgctcc	tttgctaagg	gatgattccc	cactaaagcg	ttacttgccg	tagccctcc	300
ttttgcttcg	accgatatga	ccaatatgca	ggagataccc	gaaagccgct	gtcccaaccg	360
gcaggtaccg	agatcatcga	gaantacttc	ccac			394

(2) INFORMATION FOR SEQ ID NO:785

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 483 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:785

cccccgtagt	gacatcctgc	tcaatataga	ttcggaggaa	gaaggcaagt	cttcgtaggc	60
tgtgcgggag	gtattgatgt	caatgtcacg	ctcgaataaa	ggaggaagag	ctggtttcgg	120
acgaagaaat	aggcgtaaag	atatcttgac	aggactcaaa	ggcggacatt	cgggtgtcga	180
tattcacctc	ggacgtccaa	tgccaataaa	ctgatgttca	gattcttgaa	agaggctgta	240
ggatttatgg	tgtcgccttg	gcattgggtg	aggaggatc	gctccgcaat	gctatccgcg	300
cgaagcggtt	gccgttatca	ccattcagga	agaaggaggc	gaactgtctg	ggaactggta	360
tccgactacc	aggatttggt	ccgtaaggaa	ttagcggcgt	agaggaaaac	attcaagttc	420
gaggcaaggt	cgtatcgaat	gccccgaatg	attattcccg	aagagatcca	agactgtctg	480
atc						483

(2) INFORMATION FOR SEQ ID NO:786

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 938 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...938

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:786

atcaaagcct	aattcacgct	ctttttcgag	attatcccg	atctctttgc	tcgttcgact	60
aatgcacaag	tagaacaacc	ttgtccccta	atctctgctc	acgaacttcc	gagtagtggt	120
tgtcaatcaa	agccttaaaa	tagttgggtc	cgtcttttgt	ccttcacaaa	cgatcaggaa	180
tcgaactatt	atgtccgggt	attctctttg	cgtttttctg	cggcttttgc	ttctcgcttt	240
tcacgtttag	tcgttctatt	tctctttttg	gtggttgctc	catggctcta	cactgaaaaa	300
atgaacggga	tagctccata	acgtccggtt	atatagtcgt	tttaaaactc	cgatctttac	360
gaacttttac	tccttctgca	tctcgaaaact	cttcaatgaa	taaagatcgg	aggattctgt	420
cctgtctttt	tcctggaacc	aatttgatca	cggcgtaaat	aatcgccctt	cagcagattt	480
gtgtcgtgag	attaaagatc	aactgtgctc	cattgggatt	tgtctccgga	gacataaaca	540
cttcagaata	cttctgggtc	aaaggggggtg	gagtttgga	tctaattctc	tatcagcaaa	600
acagaacctt	ctttcaatgt	gtcgaataaa	gggcctgaag	ctctatgact	ttcttggttc	660
cttccgattc	catttcatcc	ttggcgaaat	tttttctctg	acctgattac	ogtcttggtc	720
atatacccaa	tgagagtttt	gattttctaa	tacgcttcgg	ccatcgaaat	tctttcaata	780
tgaatcttcc	aattcatccg	gtacttccct	gagtacatcg	ttcgaaagag	gttctctgtg	840
acgatcaagt	ctttgaatcc	taactgcgtg	cgacgggaaga	agctttggct	ttcattacat	900

ccttcggat ttctttgagc attttcaggg taagcctt

938

(2) INFORMATION FOR SEQ ID NO:787

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1205 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:787

```

cgcccaanat gaaatccggt gaataacctc acggcatccg cagaagatgg acctataccg      60
cttcatggaa cgctgtacct tcagccgaac gctacaacat ttcgctcgct tcaagcgtag      120
agctgccgct gacggcgcat tctttgtacc gacgaaaact tcgatggaat aaagactcct      180
accggagAAC tgacagctgg acgatagaaa atocgtctac ctatacgtac gatgagggtt      240
acctggcgat ctggtacaag ccggctggaa agggactaac tatgctccct acacgactat      300
atctgcttgg atgcatggca gtacattttc aatcacaccg atgaggcctg atctcaccgg      360
agttggatct ttccaaagat ggcggaaga taacttgagt gtgaagctct atgctacgaa      420
atacgtcggc gacgatggcc aggcaatcag gtggaaggct atacgcgagc agcgatcgcc      480
ctcttccaat cgacgagact gtcggagact atgtgcagtc agagctgctg tatctgaata      540
atcggacgga ctggtcgatc agtggagggt attcaacggt tctttgacaa gggaaacggag      600
cgttcggtaa tcggcatata tgccgtatat gcaccggaaa tctctatgtc gatgatctca      660
agatcactca aaagtataag gccggcaaa cctgccggat cctttcctct tcaagagata      720
tttggaagc gaatcatcga tgtaaattgtg cccgagcgag tattcaagaa tgaaatgttc      780
catcgggtggc tgccgtgaag catggaggcc aaggagtaca atatcaagg tacaacgac      840
tcctttcagt ccgctccaat ctttcggagt ctgtccttct ccacgaatct gactccctcg      900
gtaagcatgg ccaaggctat ggtacagggt acggagataa tatccatata gacaatgttc      960
atggcgaggc tgtaagtatt atgatttcag tggtcgtttg gtttatagcg attactcggg     1020
caacgggtca ttgttgtaa cttaggccag ggcggaacgt tcatcgtaa agtgggtatc     1080
gctctatgaa gctgacttac taagctatct ctcacccttt cctaaaggta taccgggggg     1140
gtgtgcccgg aagtgtgaaa gtgagcactt cggcacctct ttttattata ctctacgagc     1200
ttttc                                           1205

```

(2) INFORMATION FOR SEQ ID NO:788

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 501 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...501

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:788

```

gtgtattctt tggattaggc gcataccttg tatatatgtc caaagcttaa gctacttaag      60
tgacgatcca cnagtttgta tcaattgcc a tgtaatgggc cttactatgc cacttggcaa      120
catagtcccc acgcgatgcg tgccaccgca acgactgtcn tgtgccacac aacagtattt      180
ttagcaagta ttatttaagg catcagatgg tctgcggcac tcctatgtat ttaccatgag      240
gaacnacctc aacgcatgca ggccatatcg gcaagtcagg cggtaatcta tgacactgtg      300
tgcgttgcca cgctcaactc aatcaagaat ttgtccgtnc aggatgctga ccanggcgga      360
tattcgtact gcagaagaga aagcatgctg ggctgccaca ganatgtgcc tcatggaggc      420
aaaaacagcc ttagcgcaac gccaacggga ttatatcata cccaaagtcc cctgttccgc      480
agtggcttan gcctatataa g                                     501

```

(2) INFORMATION FOR SEQ ID NO:789

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 344 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...344

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:789

```

aagccgaaca tgcgtggtac gntgaccagc gtgtagcata gtaccggcag tagatgggtca      60
gataggccag ccccttgcca aagacgatac ggagtgcgcg gagtagtggc tgatatcggt      120
aggtagcagg tctgtaaact tattccttca cgcgccgtac cggccgagag tcctatgccg      180
agcaggagcg tctgcttatg atcaggatga gtacggcagg tagcaggaag gaagcgaaac      240
cgacgtcggg ttatacagtg ccacgtcttc atagtcgatg gggtaagana tgattctccc      300
tgacgctcgg tagctcctac gctgcgcgct atcttgatct cttg                               344

```

(2) INFORMATION FOR SEQ ID NO:790

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 414 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...414

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:790

```

cggcgagtggt tctgaatgat gcgtacacaaa gaggagctgt ccgtcatgtc ccgtagtgca      60
gattgatcag ccgctcgcgc ttcatgtccc gcacccatcg tcgagataga ggtgttcgat      120
tcgtcccgtta ttgaacgaag acgaacgcgc aggataccgt gcacttcgta ccccttttct      180
atcagaaact cggcgagaaa gagccgtcct gccctgtaat tcctgtgatt aatgccactt      240
tcttttcata atcggaaaaga ccggattcct aatcttgacc ggctcaagca aatatatgat      300
tccctgcaaa agtactcatt cctcccacga taatgcagga tgcttgtttt tcctccgaaa      360
tgacagtaga gggctgcctt tgctgagacc ccaangggat ccccatcgag actc          414

```

(2) INFORMATION FOR SEQ ID NO:791

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 352 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...352

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:791

```

aggaacgagt cagagccatc gaggcacagn tgcgcgaaaga gttgtccccc ccattncggt      60
cgatgggtgtg gccgaagnac gtgtcctcgg agccatcgtg nagaggagat gaagcggccc      120
gtggatatgg ccacgctgca gcagcgancca tccgagaggg aatctgggta cgccccttcg      180
gtcgtctgnt gctatcggag ccacccttna tcatatcgcc ggaagatcta tcgtatcctt      240
acgcaggact tctcgtgta ctcggtcagg atcganccat tncatttacc cgataataca      300
agannatagt ccgaaacaaa ngaaagactc tgcatatacg ccgctnccca ta          352

```

(2) INFORMATION FOR SEQ ID NO:792

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 402 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...402

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:792

cggggtttcac	ttgtgttatt	gccgttgacg	gcagagagtg	tagcagccat	agaaaggctg	60
ctcctgttgt	tatcagtctt	ttcatatcgt	tctttcccg	tagtgcagg	caaagggtgg	120
gaattttgac	gaattgccgt	tcgtaaatat	gaataggcac	acaactttta	tgtctttata	180
gcataattgt	aaatcttcct	aaaagaatga	aaggcttatg	agaaacaagt	acataattcc	240
atccgaatgt	cgatggcaag	gtatatgggc	gtatagacgt	gcacctgtga	ttacttggt	300
tataatgcga	gaagaatccg	gggtgtaccc	ttttcctgtn	tctgattcnc	ctttccncgc	360
tgccgatggc	totattccga	taagaaatgg	acacttttgg	ta		402

(2) INFORMATION FOR SEQ ID NO:793

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1604 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:793

tcttcagtct	tggcaaagat	gaactgactc	agaaaatgat	ggtcaattca	cgggacgcaa	60
atgggagttc	actttcacta	cattggttac	tttcgggagag	ctctctttgc	ttcgtttcct	120
cttttcnata	gcaccagctt	cggaggacat	attgggtatg	gatgctgac	ctcttctgct	180
tcatnatcca	agctgttcct	acgagtatca	atccaaacat	ggtaatgtat	gggggaggaa	240
aacctccaaa	tactgctttt	catcaatggt	gtactggctc	cggttctgct	cggaccgctg	300
tttccacatt	ctttacgggc	agcagcttcg	tggtaaacaa	gatgcgatgt	tcgacctctc	360
cggcggaac	cagatcggtt	ctgcctggca	gccttcaatg	ggtggcaact	gagaggcctt	420
gaagctgttt	tgaacctgtg	gacgtggttc	tcggattggc	tgtattcttc	cttgccagag	480
tatcggtctc	ctttatttca	tcaataatat	cgatgacgaa	agtctctatg	cggcagccaa	540
cgccgacttt	gggccaatac	ggtcgcatte	ctgattttct	ttctggcaac	atagctttcc	600
tgctgactac	ggaaggattt	gccgtgaatc	ccgtttcaaa	gaggtgtata	tggagccata	660
caagtacctg	tacaatttct	tggatagccg	gccgttctgg	ctgtattcct	gttgggagta	720
atcctcgta	ttggcgata	ggtttgactc	tactgcgtaa	aggcttcaaa	cgcggaatct	780
ggctcacggg	acgggaaccg	tactgactgt	gcttgcccta	ctacttgtag	ccgttggaac	840
gatacgtctt	ggtacccttc	cacatacgat	ctgcaaagtt	cgttacgac	gagaatgcc	900
gctccagcca	tttcacgctg	aaggtaatga	gtacgtctct	ctccttatto	ctttcgtttt	960

ggcttacatt	ttctatgctt	gcgcgcactg	gacatttcgt	aaaatcacaa	aaaaagaaat	1020
ggagcaggag	atcacgtcta	ttgatctctg	acagataaatt	ccacaatctg	aggctgtgca	1080
ttgaggttcg	atcccttgat	acagcctcat	tgcttttata	tatttcgcaa	taatcatgac	1140
cgacgatttg	aaaagacggc	tatatttacc	tgaccaacga	tagcaatatg	gctcagtcac	1200
catatcaaac	cgcaccgcat	cggatggctt	ggctcttagc	ggcggagcgg	ccaaaggctt	1260
tgcacattcg	ggagactcca	tgctcttgag	gacaatggga	ttcgtcccga	catcatagca	1320
ggtcgagtg	aggagcggtg	gtagctgcac	tctatgccga	tggatacagg	ccgaagagat	1380
tccacaatta	ttccgaggca	aaaatttcag	attcctaaca	ggcggcaaat	accacaaaga	1440
ggtgtattca	gcatccaacg	cttcaagagt	ttcttcgctc	gactttacgc	cacaagaata	1500
tcgaagacct	accccttcca	tcagaatagt	ggcaacggnc	cttgaccgtg	gagttgtcaa	1560
agttttttac	aaggctctct	cgtcgagact	gtcacggctt	cctg		1604

(2) INFORMATION FOR SEQ ID NO:794

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 490 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...490

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:794

tgggtggcaa	cccatttgtg	attgagtttg	tccacgacga	tgtntgtcac	gtcaccttgt	60
ccagcacata	gtacaaattg	ggttccttct	ctccgaccgc	cgaacagcga	taggggtaga	120
agtcgaggac	aatactccgg	ctgcatttag	acgccgaaaa	tgcctatata	cgatcccata	180
cagacagagc	cgttatatcg	acggccattg	catagatagt	cttatgtcct	atggctgccc	240
cgagggattg	acaaactgct	cgacgtaaaag	atggctgtcg	tccgaagtcg	tttccgggtg	300
accccgatcg	ttgaagatca	agacaccttt	gcgcgtggat	ccgcactacg	gtgaaggata	360
tttaccatt	tgtctccgtt	gggtaggata	atatattgcc	gaaggaggcc	agattggcta	420
catccgata	gctgaaagaa	tccatgtgct	actctgcgga	tcgtcatgaa	agatggctct	480
gcctacggca						490

(2) INFORMATION FOR SEQ ID NO:795

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 489 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...489

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:795

```

cgcacaantt ttcagcttaa atgtttcttt cagatagatg atctcgccgt ggtcaagaga      60
tgatcaggcc ccaaactgga acccgaaagt gtatagatcg gaccttaccg ttagtgacgg      120
taggagtaag atcggcatag gtgcgggagc acccagttta gcctgaagcg tcatcgcccc      180
caccctgtg aggtagcttc atcgggatac totatcgaaa gataaactgt ctgggtcggg      240
ttctggaacc attggttata gaaaactctc gtacgatggg ctccccaatc tgctgttcac      300
ttgcgggcga ggctgtttga tcgtcagggt cggatagttt accaatanga gtttgattcc      360
ttgctatcac tatgatcgcc gatagtcacc gtacctgtgc tttgaagaca aaaccggtt      420
cggcagcatt aatggcattg cccatgcggg acagacagct ctctcttaa tcgtcanctt      480
aacgatggg                                     489

```

(2) INFORMATION FOR SEQ ID NO:796

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 419 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:796

```

cggggcaacc tgctcaatac agtgcctgaa atctgtactc ggaagtccgg aaagtacaca      60
tcgtactacc ctctccccgn ncgatgggtt aggtccaaa attgccggt ttacagccat      120
gaaagagtgg cgtgtgattt tttacgtttg gttcgggagg taaaaatttt acgcgccaaa      180
gcgaaaaaat tctcgcccggt tttctctgga tttacagacc acaatccgag ctttttcggt      240
tcgtatttat cgaagtggca gattttaccg cattaagatc agagatgcca gttcatctaa      300
gcgcaaatag ggaagtggg tctggatcga actgacgact aacataccac aaggagcata      360
gcggtattcc ngtagaacgt cagttcgacg ttagaaaaca ccaatgaatt tgttttttg      419

```

(2) INFORMATION FOR SEQ ID NO:797

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 472 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...472

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:797

attctgaaca	agaaaggtac	atttgccggc	tttgaagaca	catacaagcc	atgttcatga	60
actacgagcc	agggcggtac	acaccggtag	aggaaaaaaa	aatggtcgta	tgatcgatcat	120
cgtagccaaa	aagtatgagg	gagatataaa	gatttcggtg	attggaaaaa	ccaacgcggt	180
ctccgtaccg	aggtgaagtg	gcagaagata	ttgcttctcc	cgttacagct	aatgctattc	240
agcaatcgtt	aagcaagaat	acgagaaaag	aggtaatgat	ttgacctatg	ttctttgatt	300
ggcgatcaca	aagatatctc	tgccncaatt	actccgggga	tcgatccgac	caggtatatg	360
gacaaatant	angtaatgac	cactacaacg	aatcttcatc	ggtcgtttct	catgtnagag	420
ctnagaggat	ctganaacnc	aatcgatcgg	actattcact	atgagcgcaa	ta	472

(2) INFORMATION FOR SEQ ID NO:798

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 549 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:798

actacgaaga	agagttgatt	cggggcgatc	gatnggtggt	gacgcggaaa	actatcgтта	60
ttgtgacagg	cgagacaaga	cagacttcgt	tgccaatgag	agatcgngga	gattttgcgg	120
tngggcaaac	gatacgagct	gtacggatta	gatttgccga	tgctaccatc	agccttgagg	180
agcaagggcg	cgagatgaag	caagattgct	cctcgatgga	ctgacagccg	aaacagccgg	240
cttgatcatg	cacaaagaca	aaaactgtat	gatgcagntg	ctgaggacta	taatctatgg	300
caagtatccc	ggccagacgc	aaagcgatca	aagaggatgc	tttttttcgg	ccttggaagt	360
aaagtatgcc	tatgccatca	cctgccacaa	aggcagggag	gacagtggaa	acatgtctat	420
gtagatatgg	gtatgctcag	catctgcctc	atgacgagca	actctgtcgt	tggctgtata	480
cggcagttac	cgagcttcgg	agcgactctt	tctggtcaat	actccgaagg	atatgtcca	540
taagaaggg						549

(2) INFORMATION FOR SEQ ID NO:799

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 479 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...479

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:799

cggctgattg cgtacttcgc cgaattcgtc ttggccggtc atgatcggaa aatggcttgg	60
atcttaaatgt ccacatcgct attggtcgga gtgaagtaca ttcttccttt acgtagtagg	120
ctttgacttc tgccgagggg atgtcgcac tgcacacctg aagagctccg cattcttggt	180
cgtactcggg ttgtaaatg gccaacacctg tccagaaact cttggaactt gatcttgtac	240
tggtcgtgaa ggcttcgaat ccattccagat attcgtacac gtcgaggetg ttggattgat	300
gagtcggaat atcgtgctga agagattctt gcgataacca atcgccgggg aggataatta	360
gagtaccgcg attggactct tccatcagggt ctacgcgtcg gtacacgact tcgcctccag	420
ggggccggtg tcggcttctg tnaaaacgct tgttgaattc ctgagcacga ttgntagag	479

(2) INFORMATION FOR SEQ ID NO:800

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 432 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:800

cagcaaatat aacacttgga gtgtaggaac tcaatctcac cctgagcatt cgtagataaa	60
taagtatttg tattttgcta gactcgcagt gcttgagcat agtttgatga cttgcatata	120
ctcctcatgg agctctagat tgtgtattca gtacgaataa aatcgtgagg aaaagatgcg	180
tcttgatact tcggattttg agtaaagagg agtatacata cggatcctta cctatgagga	240
tctgcacata gttccctctc tctctagaaa ggcagatagt tcctttatca caaggccata	300
cctgggacat cccaatatcc cgtggctatt cgaactcgat tgaccaatcc aatctaaaaac	360
attgtttcag acaggaactc atagaaagtt cggcgaagaa ttatcaatta agggattgcg	420
taatagcata gt	432

(2) INFORMATION FOR SEQ ID NO:801

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 616 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:801

```
gcagagtgat ttcctcagaa aagcgaatcg gatcctggat gaaacggcaa gggaaaaacta      60
cagttttcgg cattattccc tgagatgcgc caccgattat ccctccacag aatccgaaga      120
gcaaagaccg gagggaaaag gctgaaagac tttggagaaa tacaagcagg agataaaggg      180
gaggaaagac aagctcatag ccaactgctg tcggcattcg atatgaatca gagacaactg      240
ccctccgtct tctggatgaa tggatgaata tcaggcctgc aagccattca gtcagcttcg      300
tacttatgtc aagcagctca atgaagactg ccgactacgc ctgggaagtt tcggaaggat      360
ggcgatggga aagctcgtgc catacctctc gtggtgaaat ggctaccttc ctctctagga      420
catcgctccg atgatcataa ggaagagacg aagaagctga tcacctcgct tactacaatg      480
agatgcaacg tctctggcac aatatgccgg agagagaatc gccgcaattc aggctatcgg      540
gcagaactgc accttcttga cccctcttcg acatccgttc ctttccgcan catgagacag      600
ntatcgtata cgagac
```

(2) INFORMATION FOR SEQ ID NO:802

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:802

```
atccccgaaa ctcttcttgc gacaggctta ctgttttcag ttgacttnca atctttttaca      60
ttcgaggaaa cgtattttgt ctgccaaactc cttacgagtt cttctgtcag ttcaaaagca      120
ttccaaagca tttttacttc tttctccaat actttcttgc catctctggg aaatagcaaa      180
cctccaaaag atgaagtatt cttcgaattg ggacaaattt ccttgctcaa tatctatggg      240
```

```

ctgtactctt ttgaatgtat gttttgcaag agatgcctta actcttgact gggattgttt 300
cgttcaggct atctgtcatt attcgggaaa aaggaataga agacaatgaa aggcctgtac 360
tgcagattct ttatcattgt tcaagaagggt gttcattcct aagtagtaat aatctatagg 420
agccggctct ttttgagtcg aactttgtct atggcatctg tgataatggt tcttttgacc 480
aaga 484

```

(2) INFORMATION FOR SEQ ID NO:803

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 590 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:803

```

gcatacagccg gaacataacc taaggagttg taccactccc aacctttgca cccgtggagg 60
agatttttcgg atggacggct ttcgtagcat gcaagagtcg ttcatacagt tacgggtatc 120
ttctacccga acacccttga ggtaggctcc gccagaacag aagcagagtt gttgcctatc 180
atacaatccc gatggccgga ctggcccatt cggggaaaaa gccactctcg cgatatacat 240
tcagcgacct tcctgaattt taatgttttc atcgggatac agcagattga gcaggggaaa 300
agggctcgaa aagtgtccca aaatccggta tcggtataga gataccggga agtacctctc 360
cattgtaggg gctgtaatgc acaaaattgc cgaagcatcc tcctcataga agcgacgggg 420
aaaaagcaga cagcgataga ggcggaatag aatgtagtgc gctcatcctt cgntcctcct 480
tcnacatgna gcgtccgagc accttattcc agcttcgca cggcaagtct gatccgggtca 540
aactctgccc tttgacttnc gcagatttct ttcggctgct cgacactgta 590

```

(2) INFORMATION FOR SEQ ID NO:804

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 396 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...396

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:804

cgtaaatgcc	actccggtgg	gtatgtatcc	acatatagac	caatgtccgc	tattccgttc	60
gagggatatag	gtgcagagca	tctctgttat	gatctgatta	taatccgcag	gaaacgatct	120
tcattgcacg	cgtcaagca	caggggtgttc	tgtgcagaac	ggattggaga	tgctgctcat	180
acaggcggttg	tgcagtggcg	tatctggaac	gaacgatagt	ctctctcccc	gtatatccgt	240
tttccatgtc	ctcgcattcc	gttcgggtatc	taatcggcat	tgccggctgc	ttgccctcca	300
tgcttgcttc	ctcctgctcg	gtcaccggtt	atgtgccgga	aggagcagac	tattagacag	360
ggttaacgaa	tcgcaagcga	aaacgggcag	tacgct			396

(2) INFORMATION FOR SEQ ID NO:805

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 441 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...441

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:805

cgggcatggc	catcggcaat	atcgtaggta	gcaacctctt	caacatcctc	tcattcctcg	60
agtcagttcg	tccatcagcc	ccatacggat	ccaaggcata	cggtcgtgga	ctatgggatt	120
ttcattctat	cggcaatcct	gctctacttt	tgggcctttt	cttcggagac	aaaacgatca	180
aacgcttcga	aggcagatcc	tcttatcgct	cttcatatgc	tatacgggtct	atttggtcat	240
gaccgctaaa	gaaagccata	cggggaaaaa	tgcgcaagaa	aaggctcgac	gccatcgccg	300
gcatattctg	cggagcgaaa	tctccacca	agaggaactg	caacagcctt	gctgtccgaa	360
gacattcccg	tatcgcaggc	cacactttca	cggatctgga	aatcctcggc	atagaaaaat	420
cggcctcgcc	ttcagggaaa	a				441

(2) INFORMATION FOR SEQ ID NO:806

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 535 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...535

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:806

tcatgagaag aagatcgccg aagccgggaa agaccggacg gttttcgaga gcgggtaaag	60
aaaaacgaag acgggacata ccaaaacccg atacggatga tggagtggaa gacggcaggg	120
atatcaaaac aatcgctcgc aggctgaaga gtacgaagag aaagcccga caggcggaga	180
gcacatgccg atcggcaatt atacggcttt caattatccg tcaagagcga agcctccatg	240
aaagaagttt cgacttcgtg gataaccggt tctttgtgaa aggttgtggc agcactatta	300
tacttacaac aacggacatt tggctgaaga ccccaaactg gccgcatgaa ctttctgaat	360
gccttggaga agattcccag agtcgtcgag agcatcggaa agaactggct gcgacacaag	420
ccaagatccc gacgttcgaa agatggtttc tgccgtatgg aagaaagagg aggaattgca	480
ggagctgaag gacaggccgc ggagctggat cgcaagatcg ccctttcgct caaaa	535

(2) INFORMATION FOR SEQ ID NO:807

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 490 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...490

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:807

ggcttcaagt cgcgatcaga catgatggt ccttcgagtg caaatgcccc tcgaagattt	60
tgatgggca gcgatcatat tcgccaaca agtcttctg tcatccaacg tagctttgtg	120
ctcgggaaa tgggacataa gtccgggacc cttcgatcgt accggtagcg tatgtacttg	180
gaccaatcct tacgtgctc ttgatttcga tcgttgccg cacaagagaa agagaattat	240
cacccttca cctctttct ccaagacct agcatggaca gccagcgaga attgttctcc	300
tcatccaata tgctgctatg tttttcaagt ccgggcagaa tatctcttct ctatcgggtc	360
atcatcttgt ntgatggcca tcagcatagc cgatcgtctt cttgcacgag gcggagcata	420
attccacggt tcattgcggc tcggtgaaag ctccgttgga tgtcggcagc caagtcaggg	480
aggggacagg	490

(2) INFORMATION FOR SEQ ID NO:808

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 452 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...452

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:808

```
gcatacttga cattccgaat aggcgtatag attgagtcga tcgctatcgg gaaagctcat      60
tatgctctgc gcgattctct tctgccgaca catagccagc cccttattta tggaaaactc      120
catagtaagc gtagccgact tatcgagtgg caaatgacaa gattcgaatt caacacttca      180
aagtttgaaa gttgtgattc aaatcaccgg cacggaacac ctccgaatta gagataacaa      240
ttgtactttc tctacatcgg cattaggaac aatctgotta aaacgaactt gtttagattg      300
aggataatat tagtaacgtc ctccaatata cccggaatag tagaaattca tgctctacac      360
cttcaatctt gattgcagta atcgcaaaac ctcaagcgaa gacaagaata ttcgacgaan      420
cgcatcgcca atggtnatnc ctaaccgggc tc                                     452
```

(2) INFORMATION FOR SEQ ID NO:809

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 378 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...378

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:809

```
gcttgcgatc actctcgtc tgtttgccctg ctttgtatga taccttggcg cctcggcaag      60
gacacggagg gtgcggtcgg gagcaaagtc gaaggcatac actctgtctt catgtaccca      120
ttgtgggtat aaggcgtttg tacgcggaga tagtttgcat atagccggat gcggaggtag      180
tatatgaacc ggccatatga agacgccggt ccaaggctta atgcttacac cggtagtcag      240
tcgtcgcatg agagggtgat tgtataagtc tcatccgggt ctttgccgat ggctgattga      300
ctaactcaag ggcattctctg ctttccctct cctcatcatc tcctcccccg gccacattgg      360
ccaccttaaa gagaccga                                     378
```

(2) INFORMATION FOR SEQ ID NO:810

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 633 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...633

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:810

gctcgtgcct	cttcgagcgc	gatccgcatg	tagcggatgt	catccgtgga	aaggtagggg	60
ctgtcatcgc	atttcctcct	ctcgaaaaag	caanggaggt	cgctttctaa	ccggtgtatc	120
acttccttca	tcagcgtttc	tcggatcaac	gggagcgggt	ctctactttg	aagcggctgc	180
aataggtctc	gacggcttgt	gtcccgttc	gttcagtcgg	atctgaatgg	ctttctttcg	240
gagcacgtgg	ctcgcgggag	tacattgtgc	cgatttttcc	tgctcatatt	cagtatgcaa	300
atatagtccc	tttattctgt	tgtcggccgg	tctgcatcca	ccatccacgg	aaagtaagac	360
ggtgatgtgg	cgaaactccg	aaacgacgaa	tacggatttg	tgtgcagggt	acggataacc	420
tttgttgcgc	tcccatccgt	aatcggaag	tccttattca	gacggagcat	cgagtcgtcc	480
cgataggttt	ggccaaaatg	gaagctgctg	cgatggagcg	atagcgggca	tcgcctcccc	540
gatacagtgg	tgagggattt	gttcgaaagg	atcgaaccga	ttgccgtcga	tcagcaatct	600
ttcggggcga	aaaggcaact	gctctatggc	gcg			633

(2) INFORMATION FOR SEQ ID NO:811

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 505 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...505

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:811

agcgatcaaa	gcggcagtg	aactgaccga	tcgctatgta	tccgatcggt	cttcccagat	60
aaggcgatag	atgccatgga	cgaggccggc	gcgagcggtca	tatcaccaat	gtgggtggctc	120
cgaaagaaat	cgagatactg	gaggccgatt	ggcatcggtg	cgagagaaca	agctctcggc	180
cgtaaaggct	cagaacacga	actggctgcc	tccttccgcg	atcaggagcg	gcgcactcag	240
cagcaatagc	ggaagagaag	aaaaaatggg	aagagcagat	gtccaagcac	cgcggaagggt	300
ggacgagaat	gtagtgggcg	atgtagtggg	cgttgatgac	agggttccgg	ctgagcggct	360
gagcacgggc	gaaggcgaac	gtctgcgcac	gaggcagatg	atctcaagac	caaagtagta	420
ggtcaggaca	cagccatcga	aggatgggtg	atgccatcca	gcgcaatcgt	ctgggggactt	480
cgcaatgaaa	gacccgaacg	ggtct				505

(2) INFORMATION FOR SEQ ID NO:812

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 751 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...751

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:812

```

ggccaacatg ggatcggata tgatgaggac tttgtctgtg atgtccggca tgctatgtat      60
tcgatgtgga tgtcgaaatt caggcgggcc ttatacttct gtaggcggat acaaaggcat      120
tttcacaata gtcgaaatag ttgaggagcc atgatggaaa ggcagtcctg ctccaaggat      180
cgtagcgagc actacttgtc ttgggggtac gagcactcgg cctcacccaa gggcgtagtg      240
acggtcgcac ctggttggtc atcttcttgc tgatctcata ggccattact tctccacacg      300
ttctatatta cgacgaaagc gcagtcgata gttctgaata gtgcatcgcg catctccatg      360
acgaatctat tgagaagaga atgctcggca ccaagtgtat tacttccata attattgttg      420
tgaggtaggt tatgcaaata tcgaacgaga tgttctaaat accgattcgc gcaaaaatac      480
aatactcttg tgcataaggc gttgatctta cacaccaaata aaagaattga agattattcc      540
tcagatgcaa ttcttatata attcacgttt ttcggtgaga gtcgctcttt ttgcctgatt      600
tgtgcctggg ccggacgtac gctgtcggcg caaacggaaa agtacaaaat cgcccctacg      660
ccgactacaa acgctatcat cttggatcca tgtagggatg catgcccagg atttggttat      720
ctccaacaac gggttgtacc cgaagggagt a                                     751

```

(2) INFORMATION FOR SEQ ID NO:813

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1145 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1145

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:813

```

gacgaagctc agaccttcct gctgtgcaga gcgaaccagc agcgggcgaa aacctccact      60

```

```

ccgtttacat agaccatatt ctcacgtag cttcctcccg aaccgagtat tgcgagctta 120
gttcattgtt ctgcgttact cctgcgtggt actgatgagc gattccaccc ctcccgtagg 180
ccctgcattg acacgaggtc tcgggtattg acgcgctcca tcgtgttgag tctgcgtttt 240
gtggctgtac cgtcacgctc gaaagctcca tctcgccctc tgccaaaacga acatcagccg 300
agtgtccttg gtcagagacg gaaagctgcy acttaccctt tggaccccat ggagctgaac 360
tcgatcgtga tgctgtccgt cgtggccttc atcgaaactc gtagtatcct ttcagattcg 420
tcgatgcgcc tgtccccgta cacgcacttt gactccggcg aacgggacgc gcttttcccc 480
acggctcgagc catagcccga taccctgacg ccttgtgcc aagctgcctg agagcataga 540
ggcagcatag cagaatgaat gacaatctgt atataccgtt gagctttaat acttgttctt 600
tcgggnaata gcttccttca tgatctatta acggtattga gggaagaaaa tcgtttgtcc 660
ctttctctcc ttttcccggy cttaatagcc aaaatccaat ggaacaaaag taatacctaa 720
agagattcga aaacaccatc cctaaaaaac atcagtcgta tgtgccatga tgctacaaga 780
aaaagcttga taaagaagtt tttggatcag atagagaagc cgtcgaaagc aattgtgtcc 840
ataccgacga tttcgccaag cattgttcag gtgcaggatt cttgcaaata cgagaatggc 900
aaaagcatca gtccaaaggc aaatagaaaa actctgtgtg tgggggggat gtgaagaaag 960
aagaagacga atcgactttg ggaattacaa gacctgtaat tttagatgcc cccttatcgc 1020
ttcgaagtg agcggaagac gggactcgaa cccgcgaccc taaccttggc aaggttatct 1080
ctaccaactg agctacttcc gcagtctatc ccgaaatgga acttcggaga aaaagaaaac 1140
gaaac 1145

```

(2) INFORMATION FOR SEQ ID NO:814

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 546 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...546

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:814

```

ggagaattgc tgtttgcaga ttttatttcg ttccaatcct gacanaagtc gaatttttgt 60
gccctctaca tttcattttc gcttaagttt cgaaccgctc gaagggtgtg catgtacaga 120
aaaagggttg acagttggag agaatcgctc aactgtcaac cttttttccg tatggtgtca 180
ttcgccggag gaatactgaa ggtattaagc atccatgcag ggtaggcccg attccgacag 240
gcttattcct tgatgatca ggttctcccg ttggatcagc gcagggctgc agaagcttat 300
cggtcagttc ttcgccatgc agattacggc cgatgatagt gcctcgttgt cgatcagcag 360
ggtatgaggg atagaatgga cgccgtattg caagctgccg ggcttgccca gnccttgtaa 420
tcggacattt gcggccatgt gtaccgagcc ttgcgatggc tttcttccat gctcccggat 480
tttcacgcag gaaaccctca cgatctcaag tttccccttg tagtcggcat aaaccttgac 540
agatcg 546

```

(2) INFORMATION FOR SEQ ID NO:815

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 383 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...383

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:815

```
gcctcggtc cacaatatgc ttactatgct tatggaaaag actaccacag gtcgtcaaac      60
gcctcttgga caagctactg gattatattc gtcgggagtc tgccctccg tctcgggacg      120
gtctttcagc gactctgctc ctattgcgaa cgctattggg cttgccgtgc aggtatcggc      180
tgggtagggc gaagcgcgat ctcatcttgc cccgaggggg aactttcttt ttcttgggag      240
agctatgggtg gatatcgatc tgctcccgga tgctccgatg ccatecgcgt gtgggcttgc      300
cggaactgta tcgagagttg tcccacggga gctatttcg aagaggcatg gactctcgtc      360
tctgtgttga gctatctgac gat                                     383
```

(2) INFORMATION FOR SEQ ID NO:816

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 383 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...383

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:816

```
ggggtaacct tcgcgtatct ctgagtcggt tgcagggttcg aatgtcccac atcttacaga      60
tagtttctat ggggactcct gcttcagag taatcaataa gcgaangaat gccttcggcg      120
atggtangtc aggtcttcct ttatgtcgcg agaaccgcaa ggcatttcat caggcgacgt      180
anattggggt ggtacacatt ggaaagagtg tcggacgggt atcgtcgttg tatttctcta      240
tcaatcaagg gcttcgggca ggagtttgac acangcttga agttcgtttt tcttcgacgg      300
tatttaagcc atanacttcc ttcacatcgc gtgaaganat tgttcgtgtn accgataccg      360
catcagcata ngaagttccc gta                                     383
```

(2) INFORMATION FOR SEQ ID NO:817

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 678 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...678

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:817

tacaggattg	tcataattgt	caatgagttc	cctcatatat	ccctgctctg	tataaggctt	60
gccatataat	aaccgacggg	atgccctcgg	aagagcacag	atcagccacg	ggttttatact	120
ccccgtcttg	ggaggtattc	ggatcnaagc	gatggacagg	gagtcgattc	gggctaaaagt	180
attcgggtgca	ttggccactc	ttctttatag	gctttttacga	actcgtcgcc	gaagaattgc	240
atgatttgtc	gtcgtttctt	tttttgtcaa	tcagatctgc	tattccttcg	ttctgaaaag	300
atcgaaagca	ttcaaaaaag	aatctccgga	tgaaccttga	taaccatttc	gcgatagttg	360
tggaaaaact	cgtgagtaaa	taggtctaca	agtcttcttc	ttgcatcgaa	agcgcgagat	420
tcaggtcaag	gaaaatagca	tatcgcgtag	actggcatcg	ggaatagtgg	caatcagaaa	480
gaggtcgttc	atagcggatt	ggatgaccag	gctcgttcgg	gtaagtattt	ttttgtcttt	540
catttgccct	gtacaatagg	gtgagaaaat	ccgtatgcag	aagaaaacgt	cggcttcttc	600
tcgtttacgg	gcgagccgac	agatatattg	tctgaggcaa	gaaggcatat	tcgtattgag	660
cnaggatggt	caagattg					678

(2) INFORMATION FOR SEQ ID NO:818

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2941 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2941

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:818

tcagagtata	tatatagacg	aaaagagtgg	ctactttgaa	cagaaatatt	agttgaacac	60
cccanacctg	tagcagaacc	agccagcaca	gcttgccaga	aaaaccttat	ctcacgaatc	120
atcagtaagc	ctccgttttg	ggtatgcgtt	ttcctcctcc	agcttttgcc	tctctatatc	180
gatcttgttc	aggatccata	cacatccgtc	agcctaccga	agtcggcaga	caggattaca	240
ggtacgcact	gaacgaattt	ctctcggcca	aaggcgtatc	cttgcccttt	atctgccac	300
acgtccgacc	atcagggttag	cagggaagat	ggatgaatac	ccgtcgttac	taccgtatct	360

```

cctgtgcta actgcaegt acggggcaga tcgtcagctg ggctacattg ctcccgggct 420
tctccacag aatggaacct aatattcgt tccettgagt cggcaactga gtttgaattt 480
cgggttgatg tcgggatcac aatagcataa tgatctgaag cagccgttac ggcacccaca 540
caccgtagc cgacactaca cccatttccg gcagtacacc atcggtcttc ccttatctat 600
ggatcatgaaa ttctccaccc tgttatagga ggcattgcc cctgtgctct caggtagtcc 660
atctccaccg gttgcggatt gagggatccg gccggaacag tagggggcgt acagaatcgg 720
ctacggctgc atcaaagctc tcttgagcga aatgtactcc aactccaacc gtgcattggc 780
atcggaagca tacgattttt ctcacgcaga ctcatataac tgcgcacttc gccgtcaggc 840
tattgatgcg ccccgtcagg gcattggcta ccgccattcc ctgcctcgat ggtagatgct 900
atcgttgaag agtacgacaa aggtaccgt ccagaaaaa gaaacagtag ccaatgttga 960
tgacgtacta taaactcaat agcttacgca tgttagagca tgctggaaga aggtttttcg 1020
gactatctca tcggatcagg aagttgaatg tgtccacgta ttaagcgca atccccgtcc 1080
cttggctaca gccaacagag gctcatcggc tacttggaag gtgatacgaa acgatcggtc 1140
agacgcttgt ccaaaccgcg caacatagct cctcctcggg caggaataca ccgttcctta 1200
cgatgtcggc ataaagtctg ggagggtttc ctccaatgct ttgaggatgg cagcttcgat 1260
cttcacgatg gactctccag acaatgtgcc acctccttat aacttacggg tatcttcttc 1320
ggaggggtat catctgggtc gcaccgcaga ccagataggt ctggggcggg gagccaagtc 1380
ttccgaagct gcacctacat tgattttgat ctgctcagct gacgtcccc gatctttaca 1440
ttgtgttcgc ggcgcataata gtccataata cattggtcag ttcatacccg gctacacgaa 1500
tggaactggc catgacgatc cgcccagtga aatgacggcg atctccgttg tacctccacc 1560
tatatccaaa tcataatttc ctccggagcc aatacatcga tgccgatacc cacagcacag 1620
ccataggttc atatatcata tatacgtcac gccacctgc atgctcctgg agtcgcgcac 1680
ggcacgcata tcgacttccg tactaccga ggataaccga tcaccatgcg gagcgcgga 1740
tggaatccag gatgcttctt accgtcatac ggatcatacc gcttatcatc tgctcggcag 1800
ctttgaagtc ggcatacacac catctcgcaa ggggcgtact gtctgatata gctgggtgct 1860
ttctcataca tctcagcagc atctgtccct actgctatca cttcatccgt gggcgatcga 1920
atgctactac ggaagggttcg tccaagacga ccttaccatc ttgatgatta tcgtattagc 1980
cgtacctaag tcaatggcca attcctgtca aaagaaaata atcccatctt gttctgtatc 2040
tgtagaaaag catttccttg cttgtgacgg tacgggagtg ctataccccg accattctct 2100
tgcgacagcc tattttctat gtttttgtaa atgtttgaaa tgtcttacac ccgtcacacc 2160
atggcaatac ctttttttgt ggctctctcg atgctcagat tgtcctaata gaaacctccg 2220
gctgaatgat agcgcgaata cctgcttcgg ctgcatctcc acacaatcg caaaaggaaa 2280
gaaagcatcg ctggccatga cagccattc aggtcaaagc cgaaattccg tgctttatcg 2340
atagcctgtc gcaagcatcg actctggagg tctgccaac tccactggca caaagttggc 2400
ttccttgacc aaagtaatag cattactctt gctatgcttc actaccttat ggcaaagatg 2460
aggtcgtccg tttcatctgc tgtaggcact acgggtgttc aggttgaaa tcgacagtct 2520
tggtgtcac accatccacc tgctgcatac cacaccgcca aacatggagc ggaactgcca 2580
ctgctcacgt acaggctttt ctgtagaagt ataactctgt tcgtcttgcg tgtcagatat 2640
tccatgcagc attatcgtag tcgggagcaa tgatcacctc gaagaaaatc ttgtcatctc 2700
ctgagctgtc tccctatcga taggagtatt tgtcaccaat atgcgcaaaa agccgatccg 2760
ggatcaccgg caagagcagc ctgccaaagt tcgtcagtgt accgcgcgaa gctatgccac 2820
agncatttcg tatgcttgaa ggtgcaaaan gtgggggcgg aaaactcact gataagcgat 2880
accgcacttt catgtctgca attggtgtag gagatttctt tttcttgag cttatcgata 2940
c 2941

```

(2) INFORMATION FOR SEQ ID NO:819

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2313 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2313

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:819

```

gggaaaaggg cgactttttc tggagtttct ggaaaagcaa atgtaggtaa agtancgata      60
aagggggcga gaacccccct cgccgaaaga ccaaggttcc tgatcaacgc taatcggatc      120
agggttagtc ggggcctaag gataagcgaa tggcgattcc gatggaagaa ccggttaata      180
ttccggtact gatacaagag cgatgtggtg acggagaagt gacagtccgg ccgtctgacg      240
gaatagcggg taaagggtgt agatgttgat cggggtaggc aaatccgccc tgaggtcgaa      300
cctgacagta cccggagtac aagtacgaag ggataaggac gtaaccggct cccaagaaaa      360
cccgtaaagc atattttctgt gttaccctga cctaaaccga cacagggtgt tgggttgagt      420
atactaaggc gctcgagaga tcgcggttaa ggaactaggc aaaatggtcc tgtaacttcg      480
ggagaaagga gcctgtctcc ggacaggccg cagaaaccag gcccaggcga ctgtttaaca      540
aaacacaagg ctatgcaaaa aagcaatttg aggtatatag tctgacactg cccggtgctg      600
gaaggttaag aggaggagtc atcgtcaaga gaagctcgaa ttgaagcccc agtaaacggc      660
ggcgcgtaact ataacgggtcc taagggtgca aattccttgt cgggtaagtt ccgacctgca      720
cgaatggtgt aacgactggg cactgtctca accgcgatct cggtgaaatt gtagtatcgg      780
tgaaatgccg attaccgcga acgggacgaa aagaccccggt gaacctttac tatgctttac      840
attgtatttg ggcacagat gtgtaggata ggccggaggc aggaagcggg tacgccagta      900
ttcgtggagt cgatgttgaa atacggccct ttgatgtttg gatactaact cgcggcgtgc      960
gaggacagtg tatggtgggt gtttgactgg ggtggtcgcc tccaaaagcg taacggaggc      1020
ttctaaagga cctcaggccc gattggtaac cggtcgcaga gtgtaatggc acaagggctc      1080
tgactgggag acaacaaggt cgcacaggta ggaaactaga gcatagtatc cggtggttcc      1140
gcatggaagg gccatcgctc aaaggataaa aggtaccggg ggataacagg ctgatcactc      1200
ccaagagctc atatcgacgg agtggttggc acctcgatgt cggctcgtca catcctgggg      1260
ctggagaagg tcccagggtt gggctgttcg cccattaaag tggcacgcga gctgggttca      1320
gaagtcgtga gacagttcgg tctctatctg ttgtgggcgc aggaaatttg cggggtctga      1380
cactagtacg agaggaccgg tgttgacag acccctggtt acggttgtag ccgccaggtc      1440
accgcgggta tccacgtctg gtaaggataa tgctgaaagc atctaagcac gaagccggcc      1500
tcaagataag atttccataa tagggtggtt aaagactatg accttgatag gctgcagggtg      1560
tatgattgta acaattaagc cgagcagtag taatagcccg aacttttgtg catcccgagg      1620
atgcgtgata gggtggtttg ttgcccgaaa gcttgaggaa ttatttttgg cctttcgata      1680
tgtcgattgc cttttcgaag tattcagggtg gttatacgtt ggggatccac ctcttcccat      1740
tccgaacaga gaagttaagc ccaagggtgc gatggtactg cgtcacagtg ggagagtagg      1800
acgccgccgt ttttaagaag cgtgagagag agggggggat aggatctcca cctcctccc      1860
cgaaaaaaag gtgaaggaga gagtctcgaa tccgaggctc tctccttttt tttttctctc      1920
tctccaaaaa tcattttgct tttctctcta ttcctctttc ccttttctct ccttctcttc      1980
ctcccccttg ctgcgcgtta ttcctctaaa gatcgtagc cactatctc attgttcggg      2040
aggtaccata ggtagccggg acggatggat agcccatcga gacgagcagc cggatataat      2100
tctccattgt gcatgatgaa ctttgcgaaac tgctccgaat ttatagtcta cgatgttggtg      2160
tgatcgctcg agagaatgat ccgatcggga cgacgctgtt cccctccggg aggagaatat      2220
cctgttcatt aagaactcgt ccgctaccat cgaacaacga gacaatcgac tgtccgaagt      2280
gacaacagat aggcgatcga ccattcgatc gcc                                2313

```

(2) INFORMATION FOR SEQ ID NO:820

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 843 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...843

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:820

```

gggaaaaaag attacggcat attgagcgtg ttattgcagc tttggtacat atcgaatacc      60
tcttcaccgt agacgcttcc gttttcgacc ccccgcccaa gtgcagagcg gtgtaatacg      120
tctgacacgc aatgaccgca aggaactcca tgtagcgaga aagccttgaa aacagtgggtg      180
aaaacagctt tcggacgcgt cggaaaacgc ttaggaactc tcttcgcggt atcttgccgg      240
ccggtttgat cgtttcgacg aacccgtttt ctcgaagcga ccggagcagt tgtcccggat      300
gatttcacgc cacttacact cctgttgacg caatagcatt ttctccccc tgattaacga      360
attcttatgg acttcacgaa agaatatctt caaatcttcg cgagatcatc gacaaaaagc      420
gcgatgcaga tgctctcgac cgatgagcaa gctccacccc gaggatattg cggctctcta      480
tgacgagctg atctggacga ggctgtctac ctctacctcc tgctcgatgg agaaaaggcg      540
gtctcgactc cttggagctg gatgaagatg agcgaaacaa ggtcctcgaa ggattccttc      600
cgagaccatc gccggaaaat ttgtcggcaa catggagccg acgatgcggc cgagctgatt      660
cgtgagctgg acgaagacca gcaagagaga ttctcagtca ggtgaccgat atagagcagg      720
ccggagatat tatcgtctgc tcaagtacga agacgataca gccggtagcc tcatgggtac      780
cgagtataaa tcgtcaatga gaactggagt atgcccaagt gtatcgaaga gatcgtatgc      840
agg

```

(2) INFORMATION FOR SEQ ID NO:821

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 415 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...415

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:821

```

ggcgatgcca atatcagcaa gcagattcgc tacaaaagcc gtatcaacat ttgaagaaag      60
aactacggga ggtaaaggaa cgttatcatc aggatagtgt cgactggaag aaatccgggc      120
gaacaaacag gggaatagag catacggcag agagttgtat ctgatgaagc gacccgaaga      180
gatcattttt ctgatcagga tagcgtccaa gacaaacaat aacgaaaata ggggcagcag      240
ggatgaccca cagcagattc gtgagataag ctaccgtgtc ggagctctcc ttttatcttc      300
ggagcagcat cccagattgg tacgctttgt tgcccggana ttactcctac gcattggggg      360
cggtactcct atctgctttc ctatgccctg acccctgttt gcggatttgg atact          415

```

(2) INFORMATION FOR SEQ ID NO:822

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 600 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...600

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:822

aatacgtatc	tgctcacgat	ggtcaggat	gtccggccaa	gtggcgtgag	gtcagcagac	60
actgaaaccg	agcattgata	tcgttggtaa	gatctaagag	taaaccgagg	agagaggggtg	120
tgtcggaatc	gcaaaatgag	gcgatcaaac	acaccctctt	tctttaaggc	acgaaagagt	180
tctccatgct	gtttctcgaa	tacagtgaga	taatcggaac	tcttgattaa	ggtccttttt	240
aatcatatcc	taacgactat	gcttgataaa	gatactcttg	cccaagtggg	ttctactttg	300
cccaactgaa	aaagtcctat	acattacgac	tcaatgctca	tactctcatc	cttctacaa	360
cgaggcgaa	gaaatgctcg	atgggcttgc	atcgtttcgg	atcatgttcg	tgcggaatac	420
aatgcggcag	atgattttcg	ttcgatctgc	tcgtagacgg	agcggatagc	gggatcggct	480
tccgtggtat	ccgggtggcc	atgaatttag	ctcaactgct	cttgcatttc	tcaacaatgc	540
ggtatcggaa	ggaatatccc	cgatgaagga	gtacaggata	gaatccgcgt	atcaatgggc	600

(2) INFORMATION FOR SEQ ID NO:823

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 491 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...491

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:823

gatggatttt	tcttcctata	caatcctttg	ccttaatcgg	ctcgatgcag	gataccggct	60
ttcggtatac	ccaagtata	gcataagga	cagaatgtga	acaaaatcaa	gaatggatat	120
gaagcagaaa	aacgcctata	accgactact	aaccactacg	acgatgtcct	caccggacgg	180
aaatggtggt	cttggcctat	atgcactgtc	tctggaaaac	ggacgacaat	atcatcgag	240
gctcgtgctg	gacatgattc	ccggcaactt	cgagggcaga	atactcgacg	tcccgtagga	300
acagccattt	tcacctatga	caaatacagg	cggatgcccc	aagcgagatt	gtcgggctgg	360
actattcgca	ggaaatgctc	gacatagcag	cgtgcgcttc	agtgcagagc	aaataaccaa	420

cgatcgctc cggcaaggcg agtcggcagc ctgcctttcc cgatcggggt ttcnacctcg 480
gctcttcgat a 491

(2) INFORMATION FOR SEQ ID NO:824

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 926 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...926

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:824

tggcgcgaga atgaaaaaaaa tctcgcgccca caacgaaaaa aaagtcgcgg tattttgcag	60
aaaagcgggt cgcgtttttc tccttttcac gtcgtgatt tcacccctg ctccggctgc	120
acacccctct ctctgcaga atgaatactt tcaaataccc ccccccgcaa aaaaacaatc	180
aggacacaaa gtgggggtat atgccactct atgtcccgat tgcgttagaa gggaaatgtt	240
gcttaggatt cgccaccgtt atcgtctgtg tgtgggaagt atttgaacg agaaaaacgg	300
ggatcgtcta agccgaagca gatttattcg atttgaacat cagtccacct tgcgatcgg	360
cgggattgcc gtcaggatat agtcgtaaaa agcttttcgg cctcgttgcc aaagataagc	420
ccctgaccac cggagggata aagttgttcg tcttgattcg gaaagtagta ggaagcaaa	480
ccggattgaa tcggccggga tattcatgac gatgttcagt gctttatcct gcgtcttatt	540
acctgacaag agactgcgtt cgaagtggct gtgtattctg tgaatgcact cctgcaccct	600
tttgtgtcgg actgcaaatg gattggtaac ggnagggttc ctcactacca cacgcaccg	660
acgtttgagg tcaggattat cttgtgtccc acaatgatgt ctgacgtaca tgagcctgaa	720
ccgggtgttg cagccatgac aacgaaatcg taccgttggt gttagtagca ccggttactg	780
catcccgcta tatgtgacgg tgatcagatt gttctgctgt gttacgttgc caaattcgga	840
taataagccg ctttgattgt gcccggtgtc tgcccatcgg taaggccaag taagtatgat	900
ccacttcgat cttacctttc cgggga	926

(2) INFORMATION FOR SEQ ID NO:825

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:825

```

ccttggaacgg tccctcaat atttgtctca gaaatggatt ccttctcgtt tttctctgtc      60
agtgctaaga caaagataga catacgaaac cataatgcga taatatctat gctaatacat      120
tcaatgataa tcatatccat gcattagaaa gccgaaaaat cacttttccg gtatcaaaca      180
ggatattgag atgaaaggct tttgagcaaa gggcttcttt tcggtggagg aagttttgtt      240
ttcaaaaagg aaagatcaat agtgatatat ataccgatgt ctactgctt ccatacccca      300
tataaatgga aattctatct atccttattt tcatgaacac ataaaaaaga catggaaaaa      360
ggattcaacg cctacgtagg tggaatgtat ccgtattgaa taatatatat ctgcgagggtg      420
agttttccat gtogatgaat gaatgaactt aagatggctt atcctacgag tataaacgag      480
gaaacagccg ttaagagta ttcaggcctt acattagtct gatgaaa                        527

```

(2) INFORMATION FOR SEQ ID NO:826

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 531 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...531

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:826

```

tcgactctag aggatcccc ctcaacgaaa tgggctatgg taccttgggg atctttatcc      60
tacggacaat ttcggaatct cggagcgagg tattacttcc tctacaatga gtacgagatc      120
gtccctatg ccatggggcc gatacagtta cgctgtcgtt cgattcgtt gctccgattc      180
tcaaggagga ttcgccactg ccttgctctc tgccggcaag aatggatcga aaagataaaa      240
accaacgggt ttctcgcgca ccaacttctt caaaagaact atatttgtag ctccgtcgat      300
agtgccatgg cagttgtaaa gatgatagtc acatcactgg aagtcttcgc tcaagattgc      360
gtgcatatgt gtcggagaac ggcttgctgc atccccgaa cgatacagca ttcttggaag      420
tcgcatataa tctgaagaag aattcacgcc ggacgactgg ttcgatctca ctgcgcagaa      480
tggtgcctg taagtctttc tacggtctat aataccctta ccttgctcga a                        531

```

(2) INFORMATION FOR SEQ ID NO:827

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:827

gggaagtggg	acgacaggta	aacagccgtg	aagcggaacg	gatgtcggag	atctttggca	60
ggcatccatt	acgattotca	aaaacaagaa	gcacttcccc	ccctctcgga	gggaaaccgt	120
attgcatgcg	tcaatctaga	tggtgcacct	ccaatacttt	tacacaagag	ctgggggctta	180
cgagcaagga	ctgctatcct	atgccaaagg	cagcaacagt	acacgtacac	aagagttgct	240
ctccaactca	aggggtacga	tgctgtgatc	gtcacagttc	gacatacaca	gccgactggg	300
caggaacgtt	tctccaccgg	ctgacggaac	aaaaccacac	tgcatcgtct	tcttcacatc	360
gccctatggt	ngccgatagg	attccggcgg	cttggacaaa	gctccgggct	atagtcennt	420
ggcatatgaa	a					431

(2) INFORMATION FOR SEQ ID NO:828

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1343 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:828

gggccgatgc	tttcagctcg	tcttccgatt	cggaacgagt	agcgcgcatg	tgctggcgat	60
ccctccgcgg	cgtcccatga	tactcatgta	gctgtcgcgg	cgagccgcca	ttggaactca	120
tcttccctgt	agccgcggaa	gacganaggg	tgtggctgtc	cacaaagccc	ggcagtagcg	180
agcgtcccg	ggcgtcagct	cccggcagcc	ttcggtcatg	gacggggcta	cgtccgccat	240
gcggcggcga	agcgatgatg	ccgtcgcgga	taactactgc	ggcagggcct	tcgaggtgtg	300
tatctgcccc	atggcttcgc	ggccgtgttt	ggcttcggag	cctggcaggt	gacgaagctg	360
ggcgatattc	ttgatgtaga	ggttcattgt	gtgggggtgt	taggcatgtg	tgctggtaag	420
gaagcttgcc	gatagaaccc	cccacgccac	ccggaagagg	gtggcgggtg	gtatctctat	480
ccttcaaaca	aaaacatgct	gacgtttact	ccatgatccg	tgattcgagg	atctgatcct	540
ggagaagttt	tcgatgccga	ggtagtattc	ggcacagtcg	atcagtgtcg	catgggtacg	600
agtccgatca	cttcgctgcc	tacgacggat	acgccgttcg	ggcggcttcc	atgcgtacca	660
tctcatgagc	gcgatagaca	gccgtctggg	gaagtcgcgc	aggttcattg	acacctgcac	720
gatgccgcgg	tcggtagctc	tacgcccatt	gccttgacaga	agcgcagacc	gccgccgagg	780
aagctacctt	cttgccgatg	gcgtccgcga	tggagaggtc	gttcgtattg	aggtcacgtt	840
gtaagcgacg	agcggcatgc	gggcgcggac	tgccacgggtg	ccgctgtcgg	gtgacgatcg	900
gccggggcga	agtcgggaat	gccagtcggc	tcgtgtatct	tctctgccat	gccttcgaac	960
tcgcctttgc	ggatcttggc	aggttttccac	ggtgggggagc	ggtagccgat	ttctcataga	1020

ggaatacggc	acgccgtact	tctcgccat	cgtgcggcct	acctccttgg	cnaggggtgcg	1080
gcgtcttcgg	cagtcacatt	cttgatgggg	ataaagggga	tcacgtcact	gcgcccatac	1140
gggggtgctg	acccgtgtgt	ttggtcaggt	cgatcactct	acggctatgc	caacggcttc	1200
gagcactgcc	tcccgaaggg	gctcggttcg	cccactacgg	tcacgacgag	acggttgtga	1260
tcctcatcgt	tgcttagttc	agcagcttga	cgccttcgcg	cgtgcggaag	gggtttacta	1320
tctttcgatt	ttctctttgt	cgc				1343

(2) INFORMATION FOR SEQ ID NO:829

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 458 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...458

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:829

ttcgacatcg	aaagaggagc	ttccgatgag	gacagtctcg	ttgccggtac	attggcccca	60
ttgacccaaa	gctgccaaac	gctgccaaact	gcgtatgtac	cgtaaagctc	gtgaatggct	120
ttgttcccag	cgggtatgcg	ctaccatgat	gagaatatcg	gatcggacga	tgctgctctc	180
gcctgaaggg	agaacgggag	tcggacatcc	agcagatcca	cccccttcga	gccgctaccc	240
cagcgagagc	tacatagtcg	aactcggagt	cgtgatctc	tccataacag	tacagtttagc	300
aatagagata	gttggttgatg	gtcggggcgga	atccagcttg	acacgccttt	ccatggttgta	360
atcttgaatt	acgggacggg	gatactatgc	gcacccgtca	atcctccgga	tatccacgta	420
aacttgattt	gttttttgat	gtggcaatct	gcacatctgt			458

(2) INFORMATION FOR SEQ ID NO:830

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 768 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...768

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:830

tacatacggc	gctgacntc	gatcgtaggc	tcgaaat	cgaggncgat	gtgcgaaaag	60
cctccacgtc	accatcctct	gcacgccata	aagccgctct	tgtgaagtgc	cacggtcggc	120
tcggaaatga	acctccttgc	catagcgtgc	accaatagat	ctgtcagttc	actgagcatt	180
tcctgccgaa	aggaggcata	cgtttttgca	tcgggtttat	attttgaggt	ttcaccgttt	240
gagcttcgtg	tttacttggg	caaatgccgt	gtatcctccc	accggaagca	aagcagcgac	300
catgccaacg	ccagcgatag	ctgttttctc	ttcttcata	tatactattg	aatttagaat	360
gaatctctcc	aaatgtaacg	acaatcgagg	agtaggatat	aaattttgaa	taaaaagcag	420
ctatagagtc	acgcagtagc	gttgtggaaa	taaaaagaga	cgtacctccg	gaggggagat	480
acgtctctgc	ttttcgtttt	tgtatctgct	ctgtatgagc	aggggagtg	aatcagggat	540
agcaaacgcc	ctgagctacc	atagccttgg	caaccttcat	gaagccggga	tattggcacc	600
cttcacatag	tcgatgtagt	tgcggtcttt	accgtattaa	cgcaactgctc	gtggatgtct	660
tgcattgctc	ggtgcagcca	cttgtcantt	cttcattngt	ccaaacnagg	tgcatagcgt	720
tctgcgtcat	ttcgaacctg	agcaagaaac	accacctgca	ttaacagc		768

(2) INFORMATION FOR SEQ ID NO:831

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 457 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...457

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:831

cgctctatga	tcccgaagaa	ttttacaatc	agacgatgat	ccatagtcgc	ggatggaaga	60
gctgttcggt	gtaaaacccc	gagtgtctgc	caatacaggt	tgatcttctc	cgacaacatt	120
gccacccaag	tggcagaaat	gggttttaag	ggatgctcac	ggaaggagcc	aaacacatac	180
tcggatggaa	gagtccaact	atctgtacaa	agccggatcc	gctccggagt	tgtccctctt	240
gctcccaatc	cgaggctgag	cgatgccatc	agtgccatgt	tcacccgcta	cgatggaacg	300
aatatccctt	gacggcagac	aagatgatcc	gttggatcga	agaactcccg	aagaggagca	360
gatattcaat	ctcttcata	actacgaagt	ctgggatcgc	tccatccgag	gagtcgggta	420
ttttcgattt	ctttcgtgca	ccccttcttt	ggcgaaa			457

(2) INFORMATION FOR SEQ ID NO:832

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:832

cggtctgcag	atgcttagcg	ccaaggcggg	aaagagccgc	agcggaacct	tatacagcag	60
ggaatagaaa	tgagcattat	tggccggatt	gtccatcagg	caaaatccag	ctcatgcccg	120
gtacggatca	tccaacggga	atcggagctt	tgagagggaa	cgtcttctct	cccaacaaat	180
tcagtgtcca	tcctcctaac	gaaggggtga	caaatagggtg	tcgcgcgtta	tgcttccgcc	240
accacgacca	tataggcaga	atgaatgcgg	tagggcgact	gctccgtggg	caacctctac	300
tcgaagaatc	agttgcaaac	gctgtattgc	taccgtggga	agatcctgcc	cccatgccaa	360
caatccgggtg	agtagcagaa	gcggcaaaac	aatgcgtatc	gtctattcgt	tttcatcgtc	420
gtcgaattgc	aatcgctgga	tccaagagt	tcgtctctta	tatcttcata	ggaagcaatg	480
gcttcgggtg	aacctcggcg	aagctctcgt	ccggatcggt	tgttt		525

(2) INFORMATION FOR SEQ ID NO:833

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 523 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:833

gcgtatatcc	gatgttggat	atgaatttcc	cgaccgtgga	tccggccgac	cgtatgcact	60
gacagagcaa	gagcagaata	tcgtagatcg	tctgatggct	gttttatgcg	gagtgaaaag	120
ctgcaaaacc	atctcaaatg	cctctatgtc	atggcagtat	gtacctgacg	tataatatga	180
atctgctcta	ccatgctcta	tcctcttgaa	caaggataag	tcgctcaaga	aggtacgggt	240
aggggcaaga	cctatgccgg	acgcgaattg	ctcgataagg	tggaagagat	gatcgtagcg	300
catatgtggc	tcccagaaaa	agcgatcaga	gaattgcggc	tgtgactaca	tgtggtacct	360
ctggtgcgga	ccggattctc	ctcttttcga	caagctatga	tgactacttt	cgagcggtac	420
ttcatcgaag	ataaggctac	gatcatgagg	aaaaggggta	ctactacgtc	tatcgtcagg	480
agaaagccgt	tgtgagatga	tcctcaaaga	gtttgggctt	gaa		523

(2) INFORMATION FOR SEQ ID NO:834

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 531 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...531

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:834

ggccgatacg	gtgggttatca	ttgatggtac	tattctcggc	aaaccgcaaa	cagagaagag	60
gccgctcgga	tgctacgtac	gttaagcggg	cgtacgcaca	ggtggtgacc	ggtgtgtgca	120
ttagccaccg	gtgggagaca	agggcttctc	gtgttccagt	ctggtaacct	ttgcgcattc	180
gagtgatgag	gagatcatta	ttatctcgaa	cgtatcgcc	cctatgacaa	agccggttcg	240
tacggataca	ggaatggata	ggctacatcg	ccattcagcg	agtggagggt	tcgtctacaa	300
tgatcatgga	ctaccggttc	atttgctcta	taatgaactg	aaaactttgg	cgaatcaaat	360
taaagtctct	atatttgcac	cccgaagtgt	aggagagata	actaacaana	caatataaga	420
gcaatgaaaa	gaacatatca	acctctaacc	gtaagagact	gaacaagcat	ggctttcggg	480
ctcgtatggc	acggcaaatg	gccgtcgtgt	attggccgtc	gccgtgcaaa	g	531

(2) INFORMATION FOR SEQ ID NO:835

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 604 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:835

ataggggaat	gtttggcccg	acgtatatca	gcagggtggc	aatctgctcg	agtcgtacgc	60
caatcgaacg	acagagccat	ccctcaagcc	atcgcccggtg	cctcacctac	ttcggcgaat	120
actggggcaa	tcggctcttg	gctgcagcgg	tgctctgcac	gagctgcggg	acagtggagg	180
gtataggact	tgggaaaaga	ggagagggct	gaagactgac	cctcaagtac	tgccctatgg	240
catattaaca	atagaatcat	ggtagccagt	atagataaag	aagccgttgc	cggctggagg	300
cagagatatt	ccccggcacg	atccacctga	tcgacaaacc	ccagccatcc	ccgaagccat	360
aaggctgcta	tcggccagtc	gcacgatcgg	ctcgacacgg	agaccgccc	ttctttcgtc	420
cgtggcgccc	gtcgtccgt	actctgatgc	agatgtccac	agaaacggac	tgcttcctct	480
tccgactcaa	atgatagata	taccggagga	actgcaacag	ctactggaga	atcccgggcaa	540
ctcaaggtag	gactgagcct	gagcgatgac	atgacgggtga	tcagacgggc	aaaccgatcg	600
aacc						604

(2) INFORMATION FOR SEQ ID NO:836

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1610 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1610

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:836

```

aatatacgcc aatcgccgtg caannnaggt ctcttatggg caaacattta gcaactttga      60
acgccttgcc atcctagagg attacctctc tggggcacga gccaaagggtc cattggaagg      120
aaatatggca tcagtcgtgg tcttattctc aatggcttcg taaatttgga ctogaagata      180
aagttcatcc ggtcccatga aagcgtecca atccccccag agtgagctga ccctcaatga      240
aaaagagagt tggagcaact acgtaaagag aatcgtgtcc tcaagagtcg tctcagcgag      300
aagaactagg gcatcaagcc tacaagctac ttgntgagtt ggcgaagaaa cctacggcat      360
ccggatacga aaaaactccg aagccaagta gtcaccgttt atcagagccg gagcgtagcc      420
atcctattgc tcggctctgc gactgcttgg ctttagccgt caggccctttt ataaacgtca      480
tctcaacgat tagcacaaca tgaggaggat gtccatgca gtagtatcat ccaatattgt      540
ggcacttaag acaagcagag cacctacctc aagccggctt ccgagagcca tgggtgctttg      600
tcagcaatac ttcggcccca agttcacgct tggggcgcat gcttttgccg cctactcaga      660
cgccatggta tgatgctgcg caaacgtctg tgccgacctg gacaaccaac tctcggcata      720
ggctctacaa gtatgagacc tgctcaatac agagcctaag tttgtgcctc aaagacctgg      780
ggaatccttg tagcagacat cacctacgtg gcttaccaag atgggtttgc ctactctccc      840
tactgaccga tgcctatagt cgctgtatcg tagggatttg ctacatccga ccctggaagt      900
tgaaggctgt ttgaatgctc tgcataagc cttgctttct acgatcaaca tcaaattgat      960
acgaccaata tgattcatca agcgaccgag gcattcagta tgccggtaag agttacaccg      1020
atctgttgct gggcgaggct ggcgcacag tatgactcag acgggagatc ctcagcatat      1080
gcattggccg agcggatgaa caatacgctc aagaactcgt ggcacattcc tcttcgaagc      1140
agtcttttga tcaagcactc ctttctgtag aacaagcgtg cgcatgtaca acgaggcgcg      1200
tccacatcaa gctctaaggg cgaaacgcct atgcaagtca ttgcgccaga gtctaaaaat      1260
ccgttactaa cgagagggag catgggcena gagattgccc ccgagctata ccgaaggatg      1320
aattcagaca aagagctaac tttgctcgtg tcaaccgaaa ttagacctaa ggtaaggggg      1380
gtcaacctaa agtagaatta tagaaagaac cagtaaacca atgtagaact atcccgccca      1440
actgtcaact tttttcagta cacgtcactc cgccgcaaaa ccagaatttg cgctgagat      1500
ttttttcggt ttggttcgat tttttctttt tctcgcgcga aaacgaaaaa ttttacgctc      1560
ggcatttttag ggacatgaaa caagtttttt ccgcgccact tcgcaggggg      1610

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(2) INFORMATION FOR SEQ ID NO:837

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 463 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...463

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:837

ggaaaaagtc	gaacgagttt	tttctcgttt	tggcgcgaga	attttttact	cccgaaccaa	60
aatgaaaaaa	ttctcgaacc	acatcttttg	gccccatgat	gatgtttttc	cggttcgtaa	120
agagatggca	gaaaaaattg	cgcgagcgact	gttggtataat	tggattttgt	ttctaccttt	180
gcaatcgcaa	aagaacatgg	gcagttacca	gagtggccaa	atggggctga	ctgtaactca	240
gctggttacg	ccttcgggtg	ttcgaatcca	tcactgcccc	ctcttcactt	ttgtaaaaca	300
agcgtaagg	tcgcggaagt	agctcagtcg	atagagcatc	agcttccaag	ctgagggtcg	360
cgggtttgag	ccccgtcttc	cgctcttatt	gaatcaaggg	cccggatggt	ggaatggtag	420
acacgaagga	cttaaaatcc	ttggccatta	tcggctgtgc	ggg		463

(2) INFORMATION FOR SEQ ID NO:838

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 329 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...329

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:838

agctccgcat	cgtgcctgtg	gnagnttggc	tcgtggccac	gcttcgcagt	ttggtgccgc	60
ggtgcaagag	cagacagccg	aaatcaaagc	gcatgatgca	ccatgctgcc	catgcgcaat	120
atcatagcct	cataccgccc	cgaagccccg	ggcgatgct	actgatggct	cactgggata	180
cgcggccggt	ctgcgacagg	atgccaaacc	cgctatgcac	acagagacct	tcgacggctc	240
ggacgtggcg	gcagcggaat	taggcgttat	tattggagat	agcgcgctat	ctggacaaca	300
gaaagatttg	ggcatgggca	tcgatattg				329

(2) INFORMATION FOR SEQ ID NO:839

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 605 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:839

cccgaccagc cattcccttc gcgagggaag tctatccact cgggatgtcg aattcattgc	60
ccatgaaatt gagataacca ccattcatcg tcgtggcatg aagagacgga tcatcttcag	120
cagtgcaatg cctctgtcca cgctatgaca caactctgct tgttcatata ccaatacata	180
tcggcatcga tcaggcaaat atgattgtct tgtcccgac caaagcctga tcgtgactct	240
cggcaagctg atcgtctttt cctcctgacg gcgattggtc agttgatacc agattcgccg	300
ggattccagt ctctgtcacg atgctctttg atgagcttga tccgaaatcg gggatattca	360
tggctaaacg gtagtcaaag ccatatcccc cactgccaaag ggaagagcta atccgggcat	420
gccgcttacc tcttcggcta tgtgattgca tcggggcaaa gttcgtgaat gagtttgttg	480
gccaagatca ataggcaata gcctgcgcgt cctgatggcc gttgtaatag ctgtcgtaat	540
gtcgaacctc tcgccgagtc catgactata gtatagcatg gacgtcaccc atcgaaacgg	600
aagcc	605

(2) INFORMATION FOR SEQ ID NO:840

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 855 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...855

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:840

cggaaaaaagg ggaaaagtat agacaaggca tccgctcccc gttcacgcct gggaggaacg	60
tccttgtctt ttctgctttt gtggttctct ctgccgtttt tggtttatgc agagtctgca	120
ggatgtttac accaacttcatt ttctgatccc atctcctatt ccgagctgcc gccggacata	180
ggagtctcag gcaggcgccc gaccgcttgg acattatgct gaaagatcag ggtatcgtgc	240
ttctgcctat aagctgaagg ggttctctcc gatcaatata tccccatcca aagccaattg	300
cacaagaaaa agagcatgcg actgaacaaa tgggatctgg tcgactgctc caaaaacaac	360
tggagacctc caccgacctt gcagccatct cgccgaagac atcaaagcga cattctacac	420
tcgcaaaaag aaaaccgtac cgtagtcata aacggacaaa ccgtcccccga agaaggattc	480
tacgccttgc tcccatcttc tcgccgagcg aagtgaccat atatggaagt gcagaagcgt	540

ggcgagtatc	gggtccgtga	atacgggaaga	gttttctatc	gacggattga	gagcgatttc	600
tccggtgaca	tagcggattg	ccccgatcga	tgatatcggt	atcgatccga	caaatatcag	660
aatgcaagtg	cgtgtagagc	aactaaggaa	caaacgtttc	gaactgccga	tcataacgaa	720
gaatgtgcct	gaaggttcct	ccttcgtcct	ctacccggca	aagtgtcgat	acagctcaca	780
ctnccacatc	gcactacaaa	gaagtatcgg	aagctgattt	gcaaacagcc	gtttctatcc	840
gtcctctccg	gattc					855

(2) INFORMATION FOR SEQ ID NO:841

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 397 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:841

gcgtccgaga	tctcacccaa	agaggcacgc	agccctgcag	ctttgaccga	aggtcgagca	60
ggttaccctc	tttcgtctcc	acgcatttgg	tgatagccca	agggtcttct	gcaccgcttt	120
ctcatcacgg	tgagagcgga	gatcgtagg	cgctctatct	gctgcttacg	aacagccgta	180
ttgtcgatct	caagaaatct	ataggatcct	ccttaggcag	acgatacttg	tttaccceca	240
cgatacctgc	tggtgcgagt	cgatacgagc	ctgtgtacgg	gcagcagctt	cttcatacnc	300
agcttgggta	gtccggtctc	gatggctttt	gccattccgc	ccactcctgt	acttccttga	360
tgagtgtcca	cgccttggtg	tttcgaattc	cgtgggtc			397

(2) INFORMATION FOR SEQ ID NO:842

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 880 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...880

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:842

tggcgaattg	atttcaacgg	gatctaccag	tggaatagac	ttcgaacgat	caatccggat	60
gacatcgagc	gaatcgaagt	gcttcgtgga	gcttcctcgc	tttgtacgga	tctaatagcca	120
tccgaggtgt	tatcaatatc	atcaccctac	agccaaggat	ccttttcgcg	tatctgcttc	180
ggctcgatac	gatagtgcga	cggacagaaa	tacgatgtgg	cagcaggagt	gaaacgtggg	240
atcttaccag	tcagtcgggc	gtacaatata	gagcagacaa	aagttatatt	ttggccgatac	300
agttcgagca	ggaactgaat	gttgcaggca	atacgacatg	gaaataaatac	aagaagttta	360
caatctctcc	gacggaaaac	ttatccttca	acttaccgga	ctggtgaatc	tgcgtaagca	420
gcactggacg	gataagatcg	atttctgtac	aactcctacg	atgtcaaagc	cggtgccaac	480
tggcgtatca	cgagacttcg	gatctggacg	tctcttatca	ttacgacaaa	tatagccgta	540
tacctgtctg	atcaagactg	agaacccaaa	gaaacttccc	attttcgaga	ggatatgcac	600
catttgcgag	cacaatacaa	tctcaatctt	gctgaagcca	ccttctcaat	gtgggtctgg	660
agtatatcca	tgataatgta	gcatcgcccg	tctttcctct	ccgaacgacc	cgggggaaaa	720
gtccgtgaac	aacaaatcct	atacggacag	tacatatata	aagttacccc	caaactcgta	780
ttgactatgg	aaggcgcttg	gacaagcact	ccggattcgg	cttgtactat	acacgcgcct	840
gtctgccatg	ttcaagtgca	gccatgtcac	caatcgcttg			880

(2) INFORMATION FOR SEQ ID NO:843

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 571 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:843

agagaaagat	tcttatgaaa	agaccttgct	gatgtctgct	cgtaagcata	tattgtagcc	60
atcaggatat	tcgatcggcg	agaggccgat	ctgccaaagt	agggttgatg	cgctttcgcg	120
atgcagagac	agggcagact	cattggggga	taccgctgat	agctccgttc	ggaaagcgta	180
tgccgatgcc	tatgaggacg	gcaagtagca	cttgccgttt	tgctcaaacg	atgtggtgta	240
gatacactga	gatacgtacg	gggcaggatt	tcgtgcagca	gcttcttatc	ttattaaaaa	300
acgctcatga	gacactctct	tgccattcgc	tttgttcttt	ctgattttgc	atgctctttg	360
tctcttcctt	tctgaaggcg	caagagcttt	cttcataggc	aaactcgacc	gtgcagagat	420
gcaaatagga	gagcaggcag	tatagatatt	actatccgca	cggcagattt	ggcgcatact	480
catctgcaaa	acctactgat	tcgacgatga	gtcggatcga	aattttggcc	tttggcattc	540
ggatacgttg	ttgtgaaaga	tccgatcgtg	g			571

(2) INFORMATION FOR SEQ ID NO:844

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 398 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...398

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:844

cgactctcga	ggatccccga	ggagacgacg	gacaggtgtc	ccgcttcggg	ggggattgaa	60
ccctgctacg	atcctccaga	acgagtagct	agctgtctca	ttattttcca	tatactactg	120
cgattataag	gttatcgag	caaagatcgc	gaggcaaaca	ggaatgatga	agatgggttt	180
cttagcggtt	cttagatgga	ttagaatgga	aaagccgtgt	atctgttcca	atttctggct	240
tgccgatgca	gatttatgtt	gactgcagaa	agaagactgt	agtaatgaat	gaattcttaa	300
aaatggaccg	cgctatgggg	aaggaaacca	gctacggcaa	aaaacaaagc	aataccatgc	360
caatggctgt	aatgctatat	cggacgagtg	gatataat			398

(2) INFORMATION FOR SEQ ID NO:845

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 374 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...374

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:845

gggctccaat	tcctgtctgt	tcgatggctg	ggaagatcaa	agccaacgtt	ccccactggg	60
ctatatcctc	ggagatgaag	ggagcggagc	cgtattggac	ggctgttcat	cggcagcctt	120
ctcaaggggc	agatgccgga	ggggctggcg	aagctttcct	gcaggagtat	ggcctgacgt	180
ctgccgatat	tatcgaagtg	tctatcgaaa	gcctttcccc	aatcgcttct	tggccggatt	240
ctccccttta	tcgcgcagca	tttgacatt	ccggctgtat	atagccttgt	tacaaatagt	300
ttenacgact	ttctgttgc	gcaacgtgct	ccgatacaat	cgtctgatct	ccccctccac	360
ttcnttcggn	tctg					374

(2) INFORMATION FOR SEQ ID NO:846

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 392 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...392
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:846

ttcgaggcat	tcctgcgcta	tgggctcaag	cctacattct	tgactcctca	tccatgcagc	60
gcgctgtcga	gatgttcgac	taccgctcag	gagaaaaaac	gaatggaatg	cttaccaccac	120
ctatgaagcc	tatatcagca	tgatggagag	ttccaaacaa	agtatccatc	actttgtact	180
acttccgtca	ttggcagtc	gtaaaggatc	gtaaactgat	gatttgcaag	ctgacgtcct	240
ctgccataca	gggaaaaagc	ctcgctgtgt	ctatacttct	acgatgcacg	gagagaaacg	300
accggatatg	tggtnctgct	ccgactcata	gaacatctgc	tgtgaactac	gaatccgac	360
cgaggattaa	gaacattctg	gataaaacgg	aa			392

(2) INFORMATION FOR SEQ ID NO:847

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 517 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...517

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:847

aggaagtcca	tggcgacttc	tctcccagag	tgcgatacgg	acttggattc	atatccccgg	60
catgttcgac	aaggatttgg	acattcgcga	atgccactgg	gggctaagg	atcggnccgaa	120
atacgtntct	tcattccgcga	atattgctgc	aggatccgga	gcgttatcct	ttcttcgacc	180
tgagaaatca	ggaaggctga	tgcgaaacgt	gatgatccgg	actacatcca	caggagaact	240
gatggagtcg	tggctcttct	tcgcgacgat	gttgctgtct	gagaagctct	gcttcggccg	300
tggcggaacg	tttccctcag	atcacctcgc	tcctctacgt	gataatacca	agtgaacga	360
cacgataggc	gatacaggga	gtgctcctgt	acatggcagg	gaatacattg	aggaggagat	420
gcgaaggact	ngaagttcaa	gtcgggctta	agtctttcta	ccagaccaat	agccggcagg	480
cctaccaact	tatcggatag	cgcgcgaatt	gccggtc			517

(2) INFORMATION FOR SEQ ID NO:848

- (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1420 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:848

aaagtaattt	ttagtctggc	tatcatcttg	gcggcataatt	ctcaatgaag	ctcaaagtgc	60
tatccgcaag	ggtacgtttt	cgctcaacgt	cgggatggat	cggttctcat	cacggatcgg	120
ctgcatttat	gccaccgta	gacctcgaac	cggatatcatc	agcgggtcttg	ccagaggcaa	180
aggcgccatt	actgtagagg	tcgccttggc	tattacggca	cggaacacaa	tttctctgcc	240
atcatttagc	cactaaatta	gactttcact	atcagctggc	ttctgctgtc	gatgctattt	300
aggtcagact	ctgggagggt	atttcggcaa	tgataccggc	ttttctacgg	tattcatctt	360
ggagcgcgct	tctttgttca	gcgcgatttt	gcttgttctc	agaagtatca	gccggctggg	420
ctactccctt	tgctcatggt	gggttagttt	caggctataa	cggaagagtc	ctcttaacct	480
ttctgctacc	ctttcgacat	gtggatacgg	gtgaacttgc	tgaacaacat	atTTTTtcoct	540
tggcggntta	attcgatttg	cacgactttt	gtggacggaa	agctcaagtc	ttctgaaaaa	600
ccagagaacc	atttgctatt	gaaattgaaa	tgaatcccaa	gaggctgcct	cccggaacag	660
ttccgaaaga	ggcagcttct	ctttttgaga	ctgttgacag	ggattttcat	tgaattcttt	720
tgctgcaggg	ctgatacctg	tgttttcagg	aaaggtcaaa	tctcaagtat	atgggcaccg	780
agtaacagaa	atttcccca	gcttccatca	gagggtgtata	cttgaggttt	gcaatactgc	840
atgaagcgct	cctttcttcg	tcaaatacaat	gcttgnatct	gtttgatcaa	tatgaggggg	900
tagnagggtt	atatttgagc	aacgatctcc	agaagtattt	caggggaaaag	ttctgcttaa	960
tctgcttgaa	gagtcgctct	tgagccaacg	tttgcgatag	atttcaatga	cctcccgcga	1020
gtctgattca	agtcatact	aagaaagccg	atgaacttac	gcttaggcac	atccacatgg	1080
taatgatcct	ggagctaago	ctggttcttt	atccgggtgc	gcttcttaca	aatacggcct	1140
cttgctcttg	caggcgcata	tccatctctc	cctgtgcggt	tgaatcatca	tatctgtcat	1200
atactactcg	cttaaaacga	aatatgatac	caacatcaac	ggtgttgtaa	tctttccgca	1260
caggtaacaat	agggcagtat	cgtagatgat	ccgataggcc	ccgcgtattc	ctatcgtagg	1320
tgtatatggt	atttgaggtc	gatagtcctc	ccaaaacgtg	ccttcttaaa	atactgtcag	1380
gctttccctg	gtgaatagcc	gtagttgtaa	attccccggg			1420

(2) INFORMATION FOR SEQ ID NO:849

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 316 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...316

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:849

```

gggtttctca agaagcacgg tggtagacat cgtagagcat caaggcattc cactgctatc    60
gtggatgtgt ccttcacctg ccacatgccg gactgtctga gatgccttac aaaccggtca    120
ttcgtggagc gcatcaggag ccggtaccgg cctgcccaca tacaggatag gcggatgcag    180
ctgtctgagc ggcgactcat cggtgactgg agtttcgata ggccggttgca ggtggggcgat    240
gaactatatt cgaagacatg ctccactaca cgacggtgaa gaacgaccat gttcacggtg    300
cacgcatcc  ggacat                                     316

```

(2) INFORMATION FOR SEQ ID NO:850

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 454 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:850

```

ggcaagaatc cgtgatatag atcgctaaaa aaacactaac cccaagaact gccatcgtgg    60
tggttcttgg ggttaattgt atttgttcgt ttttcggagg ctaatgaacc ggtttgtttt    120
cggaggcaaa ccgaacattc agaatgagat ctcaactctcc gtgaaaacac gaatagccgg    180
tccggccgct cctactctga actgacatag aactgcgtat gccctttgcg aagatagccc    240
catgattttc aaaagccagt tgggtcaaaa tcgtaaacgg ccagatctgt ccgtgtgcgt    300
gtgcccgtac agagccaagt ccacaccggt catcgccacg ctgcaagctt gtgcggctgg    360
tgatcgaaca ggatagaagc cttagtggta tcacatgtgg cataagcttg tgcagcggag    420
cacggaatac attcgtgcta tgtcccgtcc tate                                     454

```

(2) INFORMATION FOR SEQ ID NO:851

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 573 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...573

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:851

```

nagttgctgt ggcgaataat gagggtagga tgggtgctcat caatggcaag agatttgctc      60
gctgcttatac tattattcca tcatgcgtcg caaggaaatgg gcgatttgca tcctgatgat      120
tatatcgta agacgattgt gactacgaat tgatccgcga tatagcgaag aaagagcatg      180
tgagcatggt cgattgtaca ccggtttcaa atggatagca gccgtaataa gagagaatga      240
aggtctcgcc gctatatagg aggtggagag gagagtattg gatTTTTgtg gggagacttt      300
attcgagaca agagttcggg atctgcttgt gcactcttct gtgaatggca gcttgggctt      360
tggtatcgagg catgagtgtc tatcgactca tcgcagcatc tatttggaat acggtcttta      420
ctacgaaaag ggacttagtg tntgcgtaaa ggcaaaccg gagcagaaga gatagaagcc      480
atgatgagaa ttatcgtgag tatgcacctg tagaactcgg agctcgctg tgcangaaaa      540
tggtactatgc ttctctcgaa ggaaaagatt cac                                     573

```

(2) INFORMATION FOR SEQ ID NO:852

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 603 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...603

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:852

```

ggaacttcgt ctctgatcg atagcggacg ttatgacagg gctttgccct agcccaacag      60
ttggtggcca aaaatccaaa gcatgccgat aataactaat gctagggctt nttctgtaca      120
nggctgaacg ctacgaagaa gctattgtcc ccttcgggtg gccgtaagcc ggcggagtga      180
tgctatgag atgttgcgga tgcttatgcc aaagagtatt tcttctccga agctcttgct      240
gcaactgaaa acagaagggt actcttggtg agaaaaaaca ggaaacagtc tccaagatgc      300
cggaatagac cgtatgcgac gagctgtgcg cttactggac agaccgaatg ggtggaggtg      360
atagacagcg tacggacgaa taaagccgat ctctgtcggc ctacaatctc atagccgata      420
acggtcggct cgaatgggtg aaggaaacca aggggaggcg acttcttttg tcaatgggag      480
cggcgaccat ccatcatgac ggagaaagggt gaggatggag tttncagcct gcatgaagnn      540
nncggatcgg tggcaaatgg ggcaatgcga tccccctcga aaaactcatt cccgattcaa      600
tga                                     603

```

(2) INFORMATION FOR SEQ ID NO:853

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 865 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...865

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:853

caaagatacg	gtccatcgct	tggatcatga	agaagaagat	ggccttccc	ccttattata	60
gatgtatatg	gacatacggc	ctnatgcagg	cacacagcta	ggtatgccnc	cacgcacgan	120
cggatatagc	gaaggctctt	atagcgagac	tgcaggcttg	gtagatgccg	tttattacaa	180
gtcggacagt	actctacatt	caaagccgga	ctggaatcgg	ccgatggctt	cctgatcggg	240
tcagccaagc	cgaagcagag	tacgaaaacg	gacttctctt	cctgcccggc	tggacaaaag	300
acagaagacg	gggttcttta	tcgaccagcg	agagaacagg	gcctgctgga	ggagtatgcc	360
tccggacgta	aggtgctcaa	tatgttctgc	taagcgggtg	tttctccctg	tatgcaatga	420
gaggaggagc	atacaaggta	cctcgggtga	tagctcggcc	agagccgtgc	atctgttgga	480
gaaaaaatatg	cactgaattt	tgccggagac	gatcgtcacg	aatcttatgc	cgccgatgct	540
tccatttcct	tgaagagatg	gctgtcggag	cttatgatct	gatcgtagcg	atccaccggc	600
ttttgccaaa	catcgcaaa	tgctgcgcaa	tgcgctgtag	gttaccgcaa	actgaatgcg	660
gtagcttttc	gcaagattgc	tccgggggcg	tgctcttcac	cttcaagctg	ttcgcaagcg	720
gtcagtcggg	aggaatccgt	ttggcgggtc	ttaccgcagc	agcatcggcc	ggcagaaaag	780
tgcgaatact	gcatcagctt	acccaacctg	gccgatcacc	ccatcaacat	ctacatccgg	840
aaggcgaata	cctggaaggg	cttgg				865

(2) INFORMATION FOR SEQ ID NO:854

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 450 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...450

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:854

ggatgatggg	gtcttcagta	tggaggggtg	tgtctgcaat	ctgcccgaat	cgttcgcttc	60
gccaaagcga	acaacgcca	tgtgatgggtg	gacgaagcca	cggtatcggc	gtgatggggc	120
accacgggac	ggcggtctgc	aatcactcgg	tctgaccgac	gaagtggact	tgatcatggg	180
tactttcagc	aaatcttcgc	ttcgctcgga	gggtttattg	caggagacaa	gagcgttatc	240

aactactgcg ccaccacgcc cgatcctata ttttcagtgc cagctgtacg ccggctctac	300
ggcagcggca gcagctgctc tggacattat gtttagcgaa ccgancgttt agcccgattg	360
tgggagctga cgcactactc attgaacgca ttcgcagtct tggattcnaa ataggtcata	420
catcgacacc tattatcccg cttttatccg	450

(2) INFORMATION FOR SEQ ID NO:855

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 330 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...330

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:855

acttcatcgc cgtagcatag gactcctttc cctcttcttc gccactttta tcttggcgaa	60
gacgaaagga tcgtaggcat agcgaaaggc ctgggtgaca tcacatgat gatggccagc	120
ttgtagcacg cgccatagat accgagcgtg ctttcccttc cgccggatcg tcgaaaagca	180
tgggaaagag aatctttcgg cctgattgtt gaagctgccg gccaagccca acagcagaat	240
agggagaagt aagccagcat cttgcgcana acgtccggac gaaatacgcg gccgcatgcc	300
gccaatgagg aaaaagcatg accatctgca	330

(2) INFORMATION FOR SEQ ID NO:856

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 517 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...517

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:856

gccggtggaa gcacagatga cagcaggaag atgtctactg gggttctaata tggcctgtct	60
ggagatgatc aagagcggta cgactgcttt cctcgacagt acgctcatac ccttgccaca	120

```

gcacgagcag tagaagagat gggcttggtg ccgtaactatc atccacgctc ttcgacagag      180
gagatcagga gggggccgca tcgacagaga acgctgctac agtctgcaag aagcattctg      240
ctccttagcg acaggatcca attttcggta ggacctcatg ccatttatac cgtagcggag      300
agcaattgca attctgtcat cgcttcgcga atgagaaaaa tgtctgatac acttgcacct      360
atcggagaca gaaggagaag tccgggactg cacgctaagt tcgggtaccac tcctgtcagg      420
tatctgcaca actgggcata catcgcccaa ctaatcttgg cttaatagca tctggcttgg      480
atgatgaggg atggacttgc tggcagctca tggctgtg      517

```

(2) INFORMATION FOR SEQ ID NO:857

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 307 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...307

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:857

```

cggaagctgc ggtcagtgtc gttgccgtgt agtggaagga ggtggcgaat ccttccgacg      60
gagaagggat ttttctctcg caaagaacaa aaggatcatg gcgactttca tgtcagacaa      120
aagtaaagga ggatcttagc atcgttatcc cgaagaggta ttcggtgtga aagaatggga      180
gtgtgaagtt ctctccataa gaatgtctcc actttcatca aagaatttgt ggtgaagctg      240
cccgaggcga gactatgaac ttcaagagcg gtagctatgc ccagatcaag atacgaatcc      300
accatcc      307

```

(2) INFORMATION FOR SEQ ID NO:858

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 500 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...500

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:858

```

gcgtgcgcat tcctctcgtg gattgggggc gcggaacggg tcggatacgt tggccgagag      60
caaccgccgt ctcgaagagc atcgactgcg acaggaagag agcgttggca ccggcagata      120
ttcctgctgg tggagaaaca caacaacaac ttcgatcctt cgaattggca cgctgtaccg      180
acagtatcgc tcaggccgct atcatactgc cgtggaaacc ttcaccgtcg gggctatttc      240
caccgccgatc tgaatgcggc acaggatgcc aaggacctgg cgcgtacctc gctctcagag      300
cattgcatca ctattggagc tactactaca atctgcgtag cctacggcta tgatcccggt      360
acgcgatgag gaagatcgat atacccatgg gagaactata gggacaaagg aatcggacga      420
tcatagcaat gggaggaaac cactgatacc cgattgacct gaaagggtat atgctggcaa      480
accggagaat cttctatttt                                     500

```

(2) INFORMATION FOR SEQ ID NO:859

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 423 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...423

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:859

```

gatgcaggcg aaactagcca agcgtgttca ctttcaaagc agtgtacttc tcccgccecca      60
aaaatccccg gattgaaaaa ctttcgtccc tatgccgctc attgggtcgc agtcttcgct      120
ccgatgtcgt tctctgtagc gaattcatct gctgacactg accctcactg ctgcctctcg      180
cctgttcagt ccgaaaccaa gctgtatgtc ttatgcgatg acaatgaaca aatggcagaa      240
gcagactgca ctacggctcg gtccctcaaac atcggatgct ctcctatgtg gaagcggtat      300
tctatgtgat agcgtgcct gtgatctcta tgcctctcgc ttcctacgct ggatagggan      360
cgattccggt tacctcccca tccgtacagg anaaaagntg ctgcgcccc tctatgaaca      420
gtc                                     423

```

(2) INFORMATION FOR SEQ ID NO:860

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 347 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...347

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:860

```

ggacgaaaaa gggaatgtca agaatatcaa gcaggccatg atggccgata catcggtaca      60
agcctcggtg ccatactggg cacctccacg gtaactacta tgtggagagc ggatcgggca      120
ttgccgaagg aggacgaacg ggtttgaggc attggttacg ggcagctttt tcctgttggc      180
tctttttctg tcgccctggt tctccttggt ccagggtgcag ctacnacagg tgctcttgta      240
atgggtgggt atttatgctc ggatccattt cgatgatcga tttgtccgac ctgtcgagac      300
ttttcccgct ttcatacacac tgctgacaat ggtactcacc tacctat                    347

```

(2) INFORMATION FOR SEQ ID NO:861

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 337 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...337

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:861

```

atcacaaaca atgaacaann acaatcnagt ttctttgcct tgcgcgggcg taatcggcgc      60
attgatgctg accggctgca atggcaataa gggtcnggct aacgatactg acaggaagcg      120
cgaaccggta ccggccatcg acctcaggcc atggatacat ccgtacgccc gctggacgac      180
ttttatcgct actgcacggc aattggatga aaaacaatcc tctcanacct gcttatagtc      240
gctacgntca ttcgacatcc tgcacgacag caccctcgan cgtgtacacc tgatgtggac      300
naccttgtag caggacagca tgaagtcggc actaatg                    337

```

(2) INFORMATION FOR SEQ ID NO:862

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 486 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...486

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:862

```

gctaagctca tcattctctc gtttgccccc atgaaaagca gaatttctgt agaaacgcat      60
tgcatacaag ggcaatgaga gcagctaaaa tcacagagtg atcactgaga cggaagctac      120
ctgaccagcc ttgacaattt gcttcgcccc aataagcgag atatatacac tccgccccca      180
acaccaaaca tcagcctatc ccaagaaaca ccaacgataa agggaaaaca actgatncgg      240
cagcgcagga agagttccca aacgtgcaac ccagaaagta tctaccacat tgtaattgcc      300
ataatcagca ttgcgatgac aataggtatc cccaactttg tcaggatttc atcatacttc      360
cttcttgcaa aatattacag cgttgttcat cctataatct gtatcttctt aagtaaataa      420
attctgctgc aaaggtacag gggatacagg gtcgtcacia tagacaaaca acggtgataa      480
tagcac                                           486

```

(2) INFORMATION FOR SEQ ID NO:863

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 962 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...962

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:863

```

cggcatatga aatgtgaagc aatacgggtg gcaaggcaca gaagtcaata gttcgtcgaa      60
naggagattt ggttcgatag aaccgattcg gtatcgctga taccttccac ttggtccaga      120
gcacgcaaag agatcgaagg atgtctcccc gtactgcgcc gaagtcacct atattgactc      180
cccgtaaagta cgatctcttc ctccctctgc ggctacggcc tcagcctgtc ggacgagaga      240
ctctacgacc cgtttcggct gcgtccgcga gctttgggta tcgtgcagta agagagtggg      300
agtcgcatcc gtcctgcaact ttgaggaaat ggcgtgtgcg gtctccgccg aacagccggg      360
ttgaaaattt cgaatatcct ttgtgggggt cggagaatag tctgctcggc aaagccctgt      420
atcggctctt ggctgagaat attacgaggt cgagcttctc atcggctccc agtacgatgt      480
ctactccgtc attcgagcta tttcctccgg tttgagctgg gcatagcagc cggtgacgac      540
atcaacgcac cgggatgctc tttatgtaac ttgcggatgg cattgcggat ttcttatcgg      600
ccagctccgt tacggagcat gtattgatca cgcataatcg gccttttcgc cctctcgcac      660
agggcgcaaa ccctgctcgg cgagagtttt ccgatggctg aagtctctgc gaaattcagt      720
ttgcagccaa gagtcggaaa gccgcttttt tgttttcaaa gatgaaagca tctgtcatac      780
cgcgaaattt actgcttttt gagactgtgg gacagatatc tcagggcaac tcaagggcaa      840
tcgcatttga actgtcaaca cacttataaa cctaactaac gatgctacac tcggttatca      900
aacaagtacg aattaatggg acctttgcac acaagcaggg nccttttggg tattcttctt      960
at                                           962

```

(2) INFORMATION FOR SEQ ID NO:864

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:864

ggacgatccc	tcctccctgt	gnaattgaga	aaccgtacac	ggctaccgag	gtgatattat	60
ttgtactcat	tgttctaaat	aagtgggtatt	cataatttta	ctccacaaaa	atacaaaaga	120
acgagcgggtg	tatcaaagg	ataaaaaaag	gtgtgcaaaa	atcgccctaat	tgcgatttcg	180
acacaccctc	tttccaaatc	gatttaatta	ttgtctttcg	ctaaccgtcg	aatcagctca	240
gtttgggatg	attagaccgg	aacgaagttt	cggctogaac	caagtagtct	tgggagcatg	300
atattgcccg	aatcagcaat	gtccatccag	ctgtttccat	cgaaccggat	aaagagcgag	360
agcaacacgc	atttcgccac	tgtctacacg	ctttcagttc	tccccagtc	gcgaatacca	420
ccccacaaat	t					431

(2) INFORMATION FOR SEQ ID NO:865

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 514 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:865

ctctgtaccg	ggcataatat	cgtggatcat	accnccgcaa	cgcagttctc	tacaaagttc	60
atttgtttgt	cgtatgtgta	ttattggaaa	tgcattccgag	cctacagcca	tgcggttgcg	120
gctccttgat	gagcaaagg	aagcatatgc	acatattgct	gttcctaaac	taaacgagga	180
tgtcgcaaac	cttattcctt	aactataacg	tcagttccnn	ttccagaccc	aactccccta	240
tttgccttag	atcgaaactga	cattaaatac	gagtatagtc	cattattatc	agtactcagg	300
tgcaaagaaa	gcctaccgaa	agccggctnt	agagagttat	tcataataca	gtaagcagtg	360
cttcggagag	aggtttcgat	cggtcggtat	agttatgccg	actgctaaga	gcccggtgac	420
ttaatgccac	gcaatcggcg	tttcgcccta	agacaaccaa	tacctgagac	accgggcaac	480
ctgctaatac	gtgcctgaat	ctgtactcgg	aagt			514

(2) INFORMATION FOR SEQ ID NO:866

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 541 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...541

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:866

```

tcagcatgaa ggccttttctt ggaacaacgc gcaatgccgt agaggtgcaa tatggacggc      60
tattattaca atgcttttga tggctctatct caagagtacg ccaaatatcg gtggtgcttg      120
tctaattcttg tctcttgcgt aagaatcaca catttaccaa gatggatctg atgcaatggc      180
ttaatgagcc gtttaccctc cgccagagcc cgaaaatcag ctcttttagc acataggggg      240
atgacacatt tcgaaaaaatt gatagtcagg gggctaatacc gctccaggac taagatccct      300
atgcctcaag aagaaacttt taggacacta atggccggca gtactttttt cgccgatggg      360
tatcttttcga tagggcgaaa aacgttaatt ttcgactgtc aagatcgtga cannaccaac      420
cggaccttcc aaccttaact acaaacaaat cagaaacgat ggatttttta gacaaagtat      480
tacaagattt agccttatcg acctgaaaga gatcataggc tccttcgtga ttctattcgg      541
g

```

(2) INFORMATION FOR SEQ ID NO:867

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 708 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...708

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:867

```

gcgaaatttt ttcaaggcca gactcgggag cgttgttttc cagcaccttc aacgtagagc      60
cgactgctta atcttatttt aaaacaggaa cagaaatagt cgaaaaaatc gatccttctg      120

```

ctttgctgtt	cgctgtgctt	cattttctcta	cgaaggctgt	gacccccgtc	agaaatgtgc	180
gcaatagcca	agtgaagca	aagcaaagac	cgaacgtaca	aagccctcgg	actctgtacg	240
gtacatagca	acatgattgc	agatcggctg	gagttccgca	acaagatttc	ttccaaaaag	300
aggtaagaaa	agccgaatat	gaaaatcggc	tggcgtatgga	agcctcaatt	accctgccat	360
agattttatat	ggtgaagatt	cttggagcga	gttgtaaacc	ctttcgtggg	tgcaggaacc	420
gatgtcgaaa	ttccgaactc	catgacattg	attgctcttc	gttcgtgatg	cccgtcgaag	480
ataagcaggt	acctctcaat	ttggctaccg	tcggcgcttc	ggacggatgc	actatggtat	540
gatctttcag	tgaatcgtgg	cgatacgata	cgagcagcct	ttgacgggaa	gttcgtgtac	600
gcagctatga	agcgcggtgg	tatggctact	acatagtttg	cgccatccga	acggactgga	660
gactgtgtac	cgacacatga	gtcgccattg	gtagacgaga	atcagatc		708

(2) INFORMATION FOR SEQ ID NO:868

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1612 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1612

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:868

tatcaaagac	ccntcccca	ccgtggtntt	gaaggaattg	gccgacagcc	tgtgagggtg	60
atggcacgtg	cggtgtgcgc	gacggacgac	ctgtggaagt	ttactgggat	ataaacgaac	120
gaatctatag	cgaattcaat	cgtcagggtat	agcattcccg	ttcccgacgc	ttacgataca	180
cggatccgcc	gccgggagga	gcgaagaggg	aaaagtacgg	aagctcaatc	gccggagaac	240
gtctcaccaa	tacctccctg	taagagttga	agatcttgga	tttggacacg	aatcgagata	300
acatccctgc	tcgtctatga	cgggcagggt	ccaagccttg	gtgcgtcgaa	gattcgcgatg	360
atgggtctcca	tggacatcgt	attgactatt	ttgccggagg	agaaaccatg	aagcggctga	420
ccttgaatct	ctcatcacgc	tcggccggaa	catgatattg	cggatattgt	ccagcaatac	480
cagccccatc	gcaggttggt	ctcgtccagg	acgggggaaga	cattgcgatg	gctgatacca	540
acacgtgtac	gacatctccc	agagtcatat	cgggtctcac	cggttcgaat	ccttttctat	600
caccgcatcc	aacgtcataa	gcgtcagcac	ggccttgctt	tctgatgcgt	cagcagcttt	660
cctttctgtg	ccaaacggag	cgaataatgc	tgtgcggcat	gaaaaggcgg	atagtggcgt	720
acgaactcgt	actcagagca	tgagcggaag	gaaaagantg	gattccgccg	gtcagntcgg	780
cgataggaaa	atacctgtca	gcggcgcggtg	catgaccgcg	gccatcactc	cggcatgccg	840
aggagagcaa	agtttttctg	tggcagatag	acctcgatga	aggaaagaag	ttcagcgcat	900
aggcaaagat	gaatccgctc	agtcccccca	taacagactg	ggcgcgaaaa	gtccgccgca	960
gcctccgccc	gaattggtgg	tacggaagcg	aacaccttcg	tgatgatgat	aaatccgagg	1020
aaaacgaacg	cacccaatag	gaattggaat	acggctcgaa	caggctgcca	tccatcaaga	1080
gctgtactgg	ccgcgcgagca	gggcgttgat	cgtatcgtag	ccctcacgta	tagcggaggg	1140
aaaaggaaga	tcagaccgca	gaggataaag	gccgattgag	gtagcgttgg	cgatagtgtg	1200
gaaagttctt	gagtttgctc	tcgaaacgaa	catgaccttg	gagaagtaga	aagataccag	1260
tccgcagaat	acaccagtag	cagagcatag	gggatgcgat	ccatcgaaaa	aggnnncngnt	1320
gaaccttaaa	nttnaacatg	gttccttgcc	ccgtgataat	ataggatacg	gcgcggcact	1380
gaccgagctg	atcagcagcn	gcagcacgga	cgacatggtc	aatccagcag	gaggacttcg	1440
atgacnaata	caacccccgt	gatcggagcc	tgaagatccc	cgaaatggca	cctgcggccc	1500
cacaccnnc	gaggagcata	ncgtcttctg	ctccatgcgg	anancncngcn	cnaggttgga	1560
gccgatggan	cccccgtnag	tacgataggg	ggattcgggt	ccgaccgatc	cg	1612

(2) INFORMATION FOR SEQ ID NO:869

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 664 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...664

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:869

```

gtcattggta attgtgccag atagtattcg cggttgagcg gattggaagt gcggaatcgg      60
cagctgccgc ctgtagctcc tcttcgggtca tcaaagttcg ggttgcgctct catcagtctc      120
ttctgcagta gaagaatcgt cagtaggatg tcgaaattgg cctgtttgcg tctacgtctc      180
caatcatctt ccagcaacgc tttccccatt tgcgttcgaa agcggctttg ccctgcgcta      240
tcagtggagg ttatagaaat agaattcacc agaagctcct cccatttgca ttccggcggt      300
ggattttgag tctttccgcc ggcagaggga gcgaatcctt cacctccgca ttgaaaagct      360
cttggtctct ctggagtttt gccatctcct cccttcgagt cgtttcttct ctgctatggc      420
ataggcattg ataacgctgt cataatggcc agtcgctggt cttccggcat ggcagcaaga      480
gcaagaaggc gtcctgctcg tgcacgacct tggcatgacc gaccaattca tcgagccgga      540
ggaaagtctg gctacgcgct tgtagtcggg attgagctctg ttcagtacct gcttgcgga      600
gagaagcagg ctgagctttc aggtactgct tcctttgtat agatgtcgcc aaacgaatct      660
gcag

```

(2) INFORMATION FOR SEQ ID NO:870

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 365 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...365

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:870

gaccaaagcg gactttacca atctgcgtac atactctttc gcagcttctc gcccgacaac	60
gaggagatcg atatagtctgt ctacaaagaa gtgggcaata tctgagtgcc atggggaatga	120
aggagacgct gaacaatccc gatgtaacgt cgattgttat tatctgttcg acaacaacaa	180
gctctttacc tcattcatag ttccgccccct cataattctt ggcagtattc tccgcgtgac	240
aagagatgat atcgatcccc attatgccgg ccggcacaca ggagatcaat gctctatgta	300
atccagctcg gcgtacggct gatcaatgcc aggaacaato tccaattttc tggcaatgcc	360
gagtc	365

(2) INFORMATION FOR SEQ ID NO:871

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 672 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...672

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:871

tcgagttgtc gaagcattcg atatgtttcg gcggaacgac caagtgcaat ccttttggat	60
cccgtaggacg atagtaggg cgcgttgctc gggattgact tctcggcacg tttgagtttg	120
tcgagcttgt attgagctac gttcttccgg ataattccag cagtttccgt ttgtctccac	180
gtcgggggat cgtagtgtag tgctctctcc cgtttgccaa ccggtgtcga acggcaaac	240
gatttgtag cggtgctttc gaatctttgt ctacagctctg ttatcgccgc tgcagaagtt	300
cttcttttga ttctctatc tgctttctgt actccaaggt gtaacacgat tgatccctcc	360
gtgctctatg tgcatgtagt tgatataggc cgggtgctcg cttcgtcgta agagaaaaca	420
tctacgttgt ctatattacg cgtacgaccg tgtgcttggc ttcgtatcgc tcaagaagct	480
ctattctctc ttgcatact gtgcctcttc gaagcgcagt ccttcgctgt atacctgcac	540
ctgtcgcgat acatgcgtac aagcctgtgc aagttgcctc ggagcagacg cgtatttccg	600
atacattgct ttcgtactnn ttcgaagttt gattgccatg caggggcctt tgcatttctt	660
gatgtgatac tg	672

(2) INFORMATION FOR SEQ ID NO:872

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:872

```

cttcgacatc cgatgagacg tcaaactttt tccctttcat tttctgatcg ttatagttaa      60
tatcccaaca aaggattgat cgacaaatac ttatgagatc ggcaccataa cgcttatatc      120
gaactcactt tataagaata acgcgaacaa gggggaggaa agcaaattggc cgattatcct      180
ttgctgtgtc cgactgggat gaaaagagaa aaggaaagga agatgaaggg aaacagaagg      240
gaggaaggaa ggaaaaggag aaagcatata gaggaataga gagaaaagca aaatatTTTT      300
ggagagagag aaaataaaaa aggagagagc ctccgattcg agatctctcc ttcacctttt      360
tttccgggga ggagggtgga gatcctatcc cccctctctc tcacgcttct taaaaaacgg      420
cggcgtccta ctctcccact ggacgcagta ccacggcac cggtgggctt aacttctctg      480
ttcgggaatgg aagagggtga tccccaacgt tataaccacc tgaatacttc gaaaaggcat      540
cgacatatcg aaaggccaac aaataattcc tcaagctttg cggcaacaac caacctatac      600
cgcctccttn gggatgcaca aaagtt

```

(2) INFORMATION FOR SEQ ID NO:873

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1005 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1005

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:873

```

gtggagccga tacaggaagc cagcgaatac accgaggatc cggtttcgcg gaggaggtag      60
agaagaaaat gatttccctt gcattggaac gccacggcga aggcgcaagc agacagccga      120
ggaactgaag atttcggagc ggacacttac cgtaaaatca aggagtatgg actggaatag      180
aaccctcggg cgatacgctt ttccgctctt gcggcggtgc ttatcgctct gctgacctgc      240
tcggctgcag catctcctac agcttcaacg gaggtgctct ggactatagc cgcacaaaac      300
gctttatatg ccgcatgtga ccaatcaggc caccgcgcta tatccccgtt ggcgcagact      360
atgaccgaag ccttccaaaa ccattttacg cgcgtaccaa gctcgaaatg gcacgaacca      420
acgatgccga catgatcatc gggtggtcat cactaattac gacttcgctc ccctcgcggt      480
acaggacaac atctggccgc acgcaccaag gtaaccttat ccatacaggt gcactacgaa      540
acaaggccct ccccgaccag aacttcgata gggaccttta cgtcttcccc gacttcgaca      600
gcagcgagca gctgggtggc gtacaagacg ccctgctgcc aatatggctg acgacttggg      660
gaagcagggtg tataacgcta cggtaggaac tggtaatcct cccccaccat gacgactaac      720
gatctgtacg cctactggag caccctctgc ggctttcggc tgacacgctg ccgagatgaa      780
agcctgtacg aggcctatcc ctactgctcc accttcgtct tcctatacct ataaatatgt      840
atgtggtgca ggacgtgcgc tatgcttcgg agctgcgcgc gcggcaccct atctgccgga      900
caggcgcaag ctgtacctgc tcgtggagca aatacgcata cggagcagct gcaacccgcc      960
tcggccgaaa aggagccgga gccttctcgc tcacgatgta ctccc

```

(2) INFORMATION FOR SEQ ID NO:874

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 538 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:874

cctccttctt	tgctttatgg	agtggtttg	gttatagagc	tgtacgactc	gaagaccata	60
gtatcctctc	gtatgggttc	attctttgta	tctcagagct	gttgccacaat	aacctccac	120
ctcctcatat	cgatcaagac	agacacagca	ttgatttgac	gaagaaagga	gagcttcatg	180
cgatctctct	gcaaactcaa	gtaatttcta	tttgtttggt	gcccttatgc	atgaggtttg	240
atcttctctga	aaaacactta	agaatcagct	ctgcggcaaa	agactttaat	gaaatcctat	300
aaaatagttg	caaatagctg	atagtttagcg	cattgatggg	agcgaatcag	ctgacaatcg	360
cgctctgcat	cggtgcagga	agcaagaatc	agcgacaatc	gcgtcctgca	tcgtgcagga	420
agcaagaatc	aactgacaat	tcgccctgca	tcgtgcagga	agcaagaatc	aattgacaat	480
cgcgctctgc	tcgtgcagga	agcaagaatc	agctgacaat	cgcgtcctgc	atcgtgca	538

(2) INFORMATION FOR SEQ ID NO:875

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 394 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...394

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:875

ccctacaccc	ggcaatgtgg	caaattggtc	tatcgcttc	tcaagcagag	cgaagaatat	60
ttctgtatca	ttcatccaaa	atatccagct	cgttgccgcg	tagtcgtaaa	atgtgtagtc	120
caggaaatccc	agactctcat	cggggatagt	ttgatccct	tggcatactt	gagtttccat	180
ttcttcaaga	tagaagaagg	aaacctttct	tgaggatgc	tgccacgtat	ggatgtacgt	240
gaagacgaat	tgtttgactt	ggtgctccgt	gaccattttg	gccacttttt	cttcaactga	300

tccgtgaaga gtatggagga ttctaccttg ccggtaccca aactgtggga caacactctt 360
 cggtatggat gaccatcgcc ggacgaacac gcga 394

(2) INFORMATION FOR SEQ ID NO:876

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 596 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:876

gaggaagaac caatccctct cggaaaacct acactcaacg aactgatggc aaccactgg	60
aaggaggaag cgaatacatc gaactataca accctacgac aaacctgtcg ttccctctaa	120
attcgccata ggcatactcc gcaatggagc tacaccacca caactgcact gccgactgta	180
gccgatacac tctatcggga caatacatcg tctttgcaa gaagagtga ggagtcactg	240
acttcacccc caagcgcaaa atgttgtcac gatgagcaac ctgcctcagc tggcaataag	300
ggatttacga tcggactgtt cgaagaaggc cttgatcaac ctctgaagaa gtggtctatt	360
cacctaaaat gctcggagaa ggaaaatgta acagacgagg gggatcact ggagccgtat	420
ctccttcgag actccggatt cgattccgac caactgggca ggcggactcc atcggcaggg	480
atatgctact cggtacctn aactnccaat cctcaatgca gatactcca gtagggctac	540
caataacgaa acagaagcaa cggaaaagct acctgncacg gcagtatacc gaagaa	596

(2) INFORMATION FOR SEQ ID NO:877

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1505 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1505

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:877

ccgttaactt	nttcnggaag	ggacgcacct	tggaagcggt	ctttggagtt	gatattgagt	60
gcagcccttt	tctccggcac	tgtctccgc	agcgttttat	gtgctgatgc	ccctccaaca	120
cctccactgt	tttcaccgcc	tcttgagcat	gttccgggag	gccagattgt	agcggttttg	180
cagcatgtct	acgcctcgat	atacatatgt	gtgatagggt	cgccctgata	tttgacgagg	240
ccgttgccga	gacctctatt	cccggcaatt	tgcgcagcag	atcggccaga	taccatcgtc	300
cggccccacg	aaagccgcag	ccgaataggc	aatcgatatc	cccgcttgcg	taccggttcg	360
gcgcgtacca	ccacttcctt	gagcttgacg	tcgacggcac	caaagcgaaa	agcagcggag	420
gagcagccgc	atcgatggct	tgctcatctt	cctatacccc	atatacttta	cgctaaggag	480
ttttccgccc	cttttttctc	cagagagaac	gagccgtcgg	ctttcgagag	gacgaaggca	540
gcggtttgcc	ggaggcatcc	atgagttggc	acactgcccc	ggcaagagct	cctggctctc	600
ggcatctatc	acacgaccgg	caagcatttg	tccggtcctt	cctgagcaac	gacaggcaac	660
agccccgcca	cgcacagcca	caaatagcca	aaatcgaaat	gacagcccta	ttcatcatgc	720
tttatctctc	ctccatggat	taaacggctg	aggtggcaga	tgagaaaagt	ctaccggtat	780
cgggaattga	caaaagccgg	cgaattggcc	acgacttcgg	cataatgctc	gtgatattac	840
gaatcgtttt	gcgcattctt	tcacgcgagc	cgactttcgt	aaggcatttt	tcttgagata	900
aatcggagac	ggaaatgtaa	tctcctgcat	tcgttcaatt	cgaatacgta	ctctccgtca	960
tccgaaccga	tagcgacgat	aggccgggca	atccccgaaa	aatgtacggc	ccatccgaga	1020
gggcaatata	tcggcatacc	aagcagtatt	aatcccgtcc	gctgtggtgg	caggtggctt	1080
tcggcaagtg	tattccatga	tctccttggt	ctcttccccg	atctgccatc	gaaagacggc	1140
cacggacaac	cgtattcata	agaaccgact	atcggactcc	gtattgatga	taatcttgtc	1200
ccgatggata	gcctttaagt	acgggggtccg	ccattgggtc	ttcttgacgt	aatcataagc	1260
tttcgaaaag	atctcatagc	agtccctttc	ttccgagcta	cggcatcatt	caccgagtc	1320
gctcatactc	gtaaaagtct	ttgaagcaac	tcctcgcgtg	ccctatttcc	aaacacactg	1380
tgettgggtt	tctttgtctc	gcctcgtggg	atctttcaca	aagagacttt	gtaaaaaaaa	1440
tcgccgttgg	gtatagtcct	ccaccctctt	gggcacagta	tctaccggca	tcccttctgc	1500
gccca						1505

(2) INFORMATION FOR SEQ ID NO:878

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 377 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...377

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:878

gctgtgtcta	ngtttggggn	acccggtatac	agctttctct	atctctgcc	aagatcaatt	60
atcgtcacgt	tggtttgttc	tatcagggat	ttataaaaca	aggactctac	cccacggtat	120
cgaaaacttt	agagactttc	caatcttgga	gacgtttaag	ctcgccatct	tggattagga	180
aaaatgttgg	caatgactga	cattgaatga	caaagctgct	ttcccttcgc	tatcgttcac	240
tgtgaccaag	ggagtgtacg	cgttgcattc	tgccagaaat	acaagtcctt	gtcgcagaaa	300
tctcatatat	ctgaaatcca	ttgttgcaat	gtcgttgata	caggctcgc	gttcttttac	360
caaagaaggt	gaccatt					377

(2) INFORMATION FOR SEQ ID NO:879

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 887 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...887

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:879

```

ggaactcacc atcgacgaga ttgtggaggt gaacgggtgag aagtggatat tgcgaaaagg      60
cacaagacac aggtgccgta ccaagtgaaa ctgctcgagt acccttgcaa atcatcgaca      120
gataccgacc gttccaaaag gacaactcat attcggggac atcaactact ggacgggtctg      180
caagaagctc aaaaaatcat cagcgagtgc ggaataacaa aagacatctc cttccattgc      240
gcaagcacgg ctttgcgaca ttggcactca gtaagggcat gccgattgag agcggagccc      300
gtgtactcgg acacacgaac atcgtaacca cgcaactcta tgcaagataa ccaccgagaa      360
actcgacacc gacctctcca tgctcggcag cagctcaacg cctcatttgg ctatatcaaa      420
atggcatgac aatgaaaggg aaggcataaa cagcaatgtc cgtcagataa tcacgggtgga      480
cgaacatggg acatcacctg acccaatgaa gaaatatgga tgagcgagta tgagattgcg      540
acctgctggg cgtattcgga cataccatcc gcacgcaggt caagaagaat acaggggatgg      600
actgctgcac tcctgcacgg cagagaggaa catcaggtgg cggaggggtcg ctggcttgat      660
gtgtacagcc ttgaaatggg catagccttg cgttcgcgat caggtcgcaa agggcaaaaa      720
ggcttcgaaa gcatgcatcg caatgctgac cgaacgacac ggaggcttta tcatgttcc      780
cccacagaag caggttgttc ctgctaaaac aagcctgaca gggtttatag aggttggtccc      840
cattgacaca agggggataaa ccttttttct tttttgggtg ctggaga                      887

```

(2) INFORMATION FOR SEQ ID NO:880

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 491 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...491

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:880

```

tgcaatggac atcaagactc ttattgaatg ggtagattct ctggatgaaa tctgttggat      60

```

acgcaacggg	ctatttctat	agaaatactg	aaagagatcg	gacacgcttg	gggtttctta	120
aagatgtggg	gttggagtac	ttgacgagaa	ccgagctgca	gcataccttat	ccggaggaga	180
aagccagcgt	attcggtggc	tacgcagatc	gggagcaaac	tggttgaggt	cttgtagata	240
ttggagaacc	gagtatcggg	cttcnccnnn	nggacaatct	tcggttgatt	cattgcttca	300
ggatttgctg	gatatangca	atacagtggg	agtgggtggg	catatcagga	tatgatgctg	360
cacgccgact	atgttataga	cttaggacca	cggccggcag	acatgggtgg	gaagtgggtg	420
ttgcaggtag	tccggaagag	aggtgcaggc	taataccctg	actgccgatt	atataagtgg	480
acgaaagcgt	t					491

(2) INFORMATION FOR SEQ ID NO:881

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 385 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...385

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:881

gttacaacgt	aatcgacttc	gtagcggagg	gttgttacag	cagctccctt	gcaattatag	60
gtacaattcg	agatgcagta	ccgttttttg	ctgttgagga	attgccatga	tgcttttgcc	120
gttttttagac	catgctgctc	cacgaactaa	tctacttgac	cgccgggttc	gctgaattgc	180
ttgcttccta	tacattggac	acgacttgtc	ccataagatc	gatttcgata	cagctattga	240
tgctgccata	ttatcatttt	gagcgattac	tcgcggatca	ttgacgtaat	ctacggataa	300
agttctacat	cgggattttt	gtcgatgaaa	tgatatacgt	cttgcttcca	ttaagaaggt	360
tgcgaccatc	tttccggggg	gaaga				385

(2) INFORMATION FOR SEQ ID NO:882

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 393 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...393

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:882

gccgccgatg	cattaagagc	agaagccaag	gcttccgtac	tgattacaca	tcagcgattt	60
tgagatccgg	aagatttatt	ttcttccctt	ttactttgct	tcgaagggtta	agaagagttc	120
actcttgtcc	atggccgggt	tataaggaaa	gagaatacga	gctgctgatt	gccaccattg	180
tcatagtctga	ctacacctca	ttgccaaagta	ctttttctcc	ctgaaaaaagg	aatgaaggtc	240
cccatattca	cctgtagcat	agcgcagcac	aggcttcaact	gtaagttcgg	ctttttattg	300
aaccatttgg	caggaaaagc	gatactcacg	gtcacaggca	cttgcttccc	acgacttcag	360
tggttgtggc	tcagccttta	ccaaatcggc	agc			393

(2) INFORMATION FOR SEQ ID NO:883

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 643 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...643

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:883

ggagaggata	agatccgctc	ccccgatagg	gatcagggtca	gagtaaattgg	tgcatccgac	60
aggcgcgaaa	aagactgtac	atcaccacct	cgctggctat	gccatgggtt	tcggcctgct	120
tcaaatacaa	attgttggtc	agagcagcga	accgatagct	gctgcaatgg	acaaaatgcc	180
ttggcctccg	acaccgccaa	aataatatct	gttttcattt	ctttatttcc	tcctacttca	240
atggtattcc	ttggcctttg	cacgtttggc	agctttggcg	tcgcgagcat	gctttggatg	300
cagacgcgac	ggggaatgat	gacggataca	ccttcatagt	tgattcctcc	cggatgatgc	360
tgcatagttc	gtcatgattc	ttgggtaccg	gcacagctcc	ctgatgtgat	cggggatcta	420
ctccgatacc	gcgacagatg	gctctacttt	gccgtatgca	gacgaatgct	gacctcggtc	480
atggagatgg	ttcattgtcc	gagataatca	ccgtaatgtg	ctattctcat	tgatggcatg	540
agaagacccg	ttattccgaa	tgagtgaag	tagagtcgcc	gattacagca	cagccggaac	600
aagccggcat	nggcagccct	tnggcatcgt	gatagatcac	cat		643

(2) INFORMATION FOR SEQ ID NO:884

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 310 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:884

```

ggggatctac tgcattacgg aatggctgct cgactgaggc gaagagggtgc tattcgacct      60
cccaantgcg ctcgaaaggg aaaatcttga ttctgatgtt cggcgcttgt ccatttgggt      120
cacttgaaan cggaatggct cgtacacgac tgtatcgccc acatggggga gttcctgctt      180
gatttccaag aagagccact tagcgtatct acctcgcccc ccnattcacc gaaagcattt      240
tccggaggtc nagatagtgt cgaacatcng agacatacgt ntntccttca anaaataact      300
gcnatcccc                                     310

```

(2) INFORMATION FOR SEQ ID NO:885

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 485 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...485

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:885

```

ggggcgggtgg ctatcgtct cctacaacct cgcggcggat tattcctggt ggaaacggga      60
gccaacgctc atcgccggtt gccccaatac cggcatacgc ccgtctgacc ttgctgccga      120
tcccccgctc gtgcgtgcgc atggcagcga atataacgcc acgactctgg agccggggca      180
tgtacatgag gatgtttttt cgactgcgaa gcacgctaca gtttcgataa ggtttgggaa      240
gtatcgtttc gatgcgcaat ctgttcgata gtgcgatgta tottatccgt caacgacgga      300
gtacaacgct ttttcaccg ctatcccat tcgcggtcgc gaatgcttgc cacagtcttt      360
ttccgctact gattttcttt attcgggtata gcgccganga tcgtattgag attctttctg      420
aatttcggta cgatttttct ttcggcgagt attttcgtcg acgaaattac tcgctgcagc      480
tatgc                                     485

```

(2) INFORMATION FOR SEQ ID NO:886

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 392 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:886

tctgcgtgcc	ctgacgggat	tggagcgcga	caagctgcgt	gcagagttca	agagatcatg	60
gcctccatca	atcatttggg	agctcttttg	gctgataggc	attactgatg	gagctgggtca	120
aaagcgaaact	gctggagata	aaagagaata	tggcgatact	cgcaaaagcg	agatcatata	180
tgcttcggaa	gaattcaccc	cgaagacttc	tatgccgacg	atgatatgat	catcaccctt	240
tcgcaatggg	ctacatcaag	cgtacccttc	tgagcgaatt	cagaacgcag	gctctggcgg	300
agtaagagcc	aagggatcgg	atactcgcga	aagaagattt	ccgggannta	tatctactcg	360
gcctccatgc	acgccaccat	tatgctgttc	ca			392

(2) INFORMATION FOR SEQ ID NO:887

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 559 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:887

gatcgtgtac	acagtctcgc	tatgtttggtg	ttcgatgagc	aatacaggaa	aaaagtngcc	60
gaacattttt	cttctcctnt	anggagcggg	acttctacta	tgtctttact	gtgaaattaa	120
aaccgcggaca	gcgcgatttc	tttttcgggc	aaattttcct	ggtatgcaga	ctgccatggc	180
ttcgatcgtg	aacaaaccga	tatgaatcac	tttatgcagg	tcctcagata	tttggaccct	240
attcatatct	caaagcaacc	aatgataatg	gattccccat	gtcgagaatg	tattcaatca	300
gacggttacg	atcgggggaa	ccatcactca	gcctttacca	ttcagccgga	cggagaaaac	360
aatgtgaagt	tcgagcgtgt	ggttgcaaag	ttgatgtgaa	tatcgtggaa	ggagtggaaa	420
atctgcagaa	gattgaactt	ttaatgctaa	tgtccactat	agattggtgc	ccaaatcagt	480
cagagcctat	caagttttac	ggncccggta	gaactaaggc	gagtaggtac	cacgaaccat	540
ggctttggct	attatgccg					559

(2) INFORMATION FOR SEQ ID NO:888

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 441 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...441

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:888

atccgtgccg actttgcctt tatcaaggga agtgttggcg atgaatttgg aatctcatct	60
ataaaggcac aacacagAAC ttccagcccc tgatggcatg gcagcagact gtgtagtggc	120
agaaatcgaa gaaatccacc ccacatggcag atccccatgg aacaaatcca taccagcggc	180
atattcgtgg actatacctc cgctaatacg ctccttgcct ttagacaaat caactactca	240
caatactcca atacgactat gacaaagaca tcaatgatcc gtcttcggat gagtcgcatg	300
atgtctatta cggaggtaac ttagtanatg gggctcgcac gctcaactct tcggagacgt	360
tgccacagaa ctccttatca tgcaagatgg tgtgaaggcc tctttgtgct tatgacaatg	420
tggaattttg ggctccggta t	441

(2) INFORMATION FOR SEQ ID NO:889

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1433 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1433

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:889

ttccgaagaa agccggcgag ggagcctact cctacattta actcttttagt aagctgaatt	60
ntttnattga cataactaacc ttttcttctt ctgtgattat gctgcacctt tgtgaggatt	120
gtactataag atgagggatg gggaggaact gcttttgctt ttcttattac tcttgcttca	180
gatcgtcttc ggcagaaaat tgtccaaatc atccgaatcg gtactttgat tatcagtcac	240
ctgatctcat cggcaaatte ggcactcagg actccgagta catagtctat ggtgagtctt	300
ccaaatccgt ctctttgatc agatcttctc tgttcttgct gagacgctct tggccgtatt	360
gcaaccgata ttcttgaaca ggtcgatgat ccctggtcga tctcgtcgtt gaattcgtcc	420
agatagatgt cttcttcgtc ctatcgtcta tgtcacggaa cacttcgacg tgataaccgg	480
tcagcccccga gccagcttga tattcgaggc attctttccg atggccaaag gcacttcttg	540
ggcgcgagga ataactcggc cttatgctct gcttcgagca ggcaaatcaa gatatacgtg	600
cagggctgag tgcccgtggt atgaagaggg cgggtgtgtc gtgtactgcg taacgtcgat	660
attctcgcct ctcatgtcgc gcacgaacct cgtatgcgcg aaccgttcat acccacacag	720

gtcctacgg	ggtcgtacga	tcgtcgtaag	actctacggc	catcttgccc	ctctctccc	780
ggatcgggct	acgcagcgga	tggtgatcag	gccatcgga	atctccgga	catcagctcg	840
aaaagcctct	tgaggaaactc	tccgcttgta	cgcgatacga	tgtcttgga	ttgttggttg	900
cgttctccac	gcgctccaca	acggcgtgaa	cgtctcacct	ttgcggaaaa	agtcgcttg	960
gatctgctcg	ctcttcggca	caggagttcg	ttgccgtcgt	cgtcgataag	cagagcctca	1020
cgcttccatc	ctgatatact	tcagccgaaa	tgagctgccc	gatacgttcc	gtgaatgttt	1080
gaacagggtt	tccttctgaa	gtcccataat	cttgctggag	agagcttgcg	aagattgaga	1140
atggcacggc	gaccgaatga	agcgaagttc	acggagccgt	tacttctca	ccgacctccg	1200
cctcggggtc	gatctcgtga	gcacgacag	agacacttcg	cgactttcgt	cctctacggc	1260
accgtcctct	actactgacg	ggtgcgccat	atttcgaagt	cgcctttctc	cggattgatg	1320
attcgctgaa	gttgctgctc	gatccgaaga	tttttgccag	aacgttccgg	aagaatcctc	1380
caggacgttg	atcatcgtct	ctttgtcaat	gtttttcagc	ttttgaattc	tgc	1433

(2) INFORMATION FOR SEQ ID NO:890

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 721 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...721

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:890

tgccgtcaag	caatggggca	taaaagaaat	aacaggagat	atcatcgtca	tgcatcagct	60
tttgacattg	agggagtcaa	tgacagttgg	ctcgatgaga	caaaggcaac	tatttcgggtg	120
ccggcgtcta	tggatttaac	atcaatgtaa	tagaatagat	gtcatccttg	ctacaggcaa	180
agcaggctcc	gaagctatat	cctgagaata	gagcctcctc	atccggaggt	tcgggtggaa	240
aacagatcga	ggtaatccac	cgaggaaaag	atactgccgg	atgctatggc	gaaggttgga	300
tcttaagcga	acccttacgg	gagtccttcc	gacaaatata	gttcctaccg	cctcaagacg	360
gatttgcccg	atcctgctct	atacggagct	gctgggcca	aggcttattg	tctgctgccg	420
gcactctgtg	ccaagggaag	tccgtgcctc	atatcaagcc	gtaccgatca	ctcaagaatt	480
attaatctac	aatcccttcc	attggattca	ttgggtgcgg	tgatgaattt	ccgtagtcta	540
atcattttgc	agaggctttt	gtcaaacagt	tggctccctt	tgcatcgaga	atcatcgggg	600
taatacaaca	gagcgtggtc	tgtccgtcat	ccgaaacatt	ggacttccca	aacaggattg	660
cagcataccg	acattttctt	ttcggaggat	ccggtctttc	ccgtaaaaat	cgttttagcc	720
c						721

(2) INFORMATION FOR SEQ ID NO:891

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1024 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1024

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:891

```

gacaaggaca cgaagcgctt ctggttgttg ccaagagggc cgaagccaat cgggacttgt      60
gcaagcaatt ctattataag acgacggcat cgttcctacg tgcactggta tggggacggt      120
tcgactaccc gatcgggaac cattaccgca atataggacg cgacctgaaa gaccgcctgc      180
aaatggcggg attccccccg atggagatat tggcaaaccg gccgtaacgc attatcaggt      240
cttgagagaac tggcatacgt cagctggata gaatgccgtc tggagacagg gcgtcccatc      300
agatcagggc acacatgaag cacataggcc atacgttgtt tgcgacgagc gttatggcgg      360
cgatcaaadc ctgagaggaa acaatacggc cattaccgcc gattcgtgca gaactgtttg      420
gctatctgtc cacgacaggc ttgcatgcca agacattagg ctttcgccat cctgtcacgg      480
gagtggagat cagttcgact ccgataacc tgcgcatctt accactttgc ttgagcgttg      540
cgtacgttta tcgcctgcat atctgcagga caggactata tctgaacctat tcggctgac      600
ctcatacaaa tagtacaata ctttccccta catattaata aacagaacga tgaaaaaacc      660
aattgtggct gtcattgcag gcggttttcg ggcgaacatt cggtttcgct caaaagtgc      720
gccggcattc tgtccggctg ggaagcgagc ctttctccac ctttcttggt ctgatcgaa      780
gtgacgctgg tcggtgaagag tatcggagca gagagaggtt ccaactggata agacgatttc      840
agctttgatc tcgatggcga acgaatacgg tttgactatg ctatatcacc atacatggaa      900
ctccgggaga gaacggtctg cttcaggggt actcgacatg atcggcatcc catacaatac      960
gggtgacncg ctcgtcgaat cctgactttc aacaaatatg tgtgcaatcg ttttctctcc     1020
ggct                                     1024

```

(2) INFORMATION FOR SEQ ID NO:892

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 515 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...515

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:892

```

aacttgtttt tttgtgaatg tcggattgct cgttttttta gtttcgcctt ttgtctctac      60
aaggtgatat cgagagatgc ttccgggttcg agaaaataag aatcgacaaa cgaaaaaaac      120
attgacgtgt actgaaaaaa gttgacattg ggcgggatgc aaccagtatc cattatgggc      180
aaacatttaa acaacttgaa cgccttagca tccttgagga ttacctctcg gggtcagata      240
gcaaatagcc attgagcaga aatatggctc aagtcatggc ctcattcgct cttgcttagt      300
aaatttggac tcgaagataa agttcatccg gtcccaatga aaggtcccaa tccccccaga      360

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gtgagctacc cctgaacgaa aaagaagagt taagcagcta cgtaaagaaa atcgtgtcct	420
caagagtcgt ctcaagcgag agaactagg catcaagcct acaagctact tgtagagttg	480
gcagaagaaa ctacggcatt cagatacgaa aaaac	515

(2) INFORMATION FOR SEQ ID NO:893

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 331 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...331

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:893

cggccgaggc tccgcatcta cgccccttgc agaagagatt ggcagaagaa tcaccgttca	60
tggtacacag tcgtgaagcc tacgatgctg ctgtcgaacc agcgagatcc tctttggcaa	120
gagtacgaca gagcaattgc gcaagctgac gaggccactc tcctcgatgt ctttgccggt	180
gtgccgcagt atcatgggag cgcagcagga tagccacagg aatttcattg gtcgatttgc	240
tggccatgct accgatatat tcccgtccaa aggtgaattg cgcaagacgg tgaagccggc	300
ggagtgaagg tgaacaaaga gaaagtagcc g	331

(2) INFORMATION FOR SEQ ID NO:894

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 387 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...387

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:894

cgtttgccgg caaattatgc tcggcaccat actctcggta aagaagaatg gtagtagcaa	60
gcctatagtg ggtggaggga tcgtatatac tgatggtaag aggtcgcta ttgctaccga	120
tttctgatat atattccatt tttcgggtgct ttgataggaa agcaaagtgc cttttgtgc	180

accggtcgaa agtaaagatc cgatgccaca atggaagcac catcagcttt gtaatagctg	240
tgcgagtaaa agcgattcga aggcacgata ggagagttcg ataccggtga gttcctaagc	300
tgccaataag aggctgttac gtagcgtttg ttaatggcat cagtactgtc ataccttcng	360
gtgtaatcca tgcacgccct gccacta	387

(2) INFORMATION FOR SEQ ID NO:895

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 370 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...370

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:895

cttgettcgg tctgtcatgc tctctgcgac aagctgatct atcggcacg catatctatg	60
gcaatgtaca ggtggagaat gctgccgaag tggtagcac tgggagcaac tcaaactccg	120
cgaaaaggat gggacaagt ccgtccttc gccgtgccga agtctctccc tgcttttggtg	180
aagagctatc ggatgcggag aaagccgcag gcgtaggttt cgactgggag caacgggagc	240
aggtaggccg aaagttgaag aagagctgaa cgaagtccga ggggctattg tcaggaagat	300
cccgatgcca tggaagcaga gttcggcgac ttgctcttcg ccgggtgaat gccgctcgtc	360
tctacggtat	370

(2) INFORMATION FOR SEQ ID NO:896

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 307 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...307

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:896

cggcacggtc ttaaattccga catggncaca acagcagttc ggtcaattcc aggcacgatt	60
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tccgtattcg	cttgccacga	taagaatgga	cacgtccgac	ccgtttttat	gcggtaatgc	120
gaggaggagt	tatttcgttt	cctgcgacca	ttgagtgatt	taatctttct	tgttccataa	180
tgctgacatt	ttttttcgtc	taaagctcgg	agtgtgccga	tttcgtttcg	tgggctgttc	240
aagtgcccg	agggtatatg	tcaaggcttc	ccgaaaaaat	acgacttgga	acgaagtgga	300
aatgtgg						307

(2) INFORMATION FOR SEQ ID NO:897

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 466 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...466
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:897

ggtataaaca	accttacgct	tcatgtcgaa	cagagatacc	tgacgaccat	agctccggct	60
acatagataa	cgccattctg	aacataagca	ttagcctttc	gttggtaaga	acagcctcaa	120
caccttcacc	cttcttcaaa	tgaacaagac	atagatgttg	taatttaagg	taggaactgc	180
ttgatgaaga	gattcgacgg	agggaaagta	gcaccaccat	cttctgatat	agaaacccaa	240
tctcctaacc	atcaacggca	gggccctgat	cncatccgat	aggatgtcca	cctgggtatt	300
agcaatataa	ccaactatgt	aattcttgcc	ggcttcaatc	ttgcactagt	cttgagagca	360
agattgttga	tagtctgcat	ttcgggatca	cttcttctga	ttggggccaa	atggtcatat	420
catcagccca	gactgcagat	ggtacttgca	cgctttatat	ccaggg		466

(2) INFORMATION FOR SEQ ID NO:898

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 987 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...987
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:898

```

ggaaaaagaa actttttgtc cgtaattaaa gcattttgca gattctgcga ttccggctat      60
cagtgcata ctaaggtaaa ttttgcaaga agcattcggc ggagttctga attcgaattc      120
ctttcttggc ctacacattc gggacatccg ccaacacacc ttcaagtctg gcaagacttg      180
ctcggccgac agagaacatc agtctctcgg aaatttccat aaaggatatca gaagtccatt      240
ctttcgatgt ctgaaagtct tcgttgctct atgaaatata cgtgccaaaa aagtttcaac      300
aacgaagctg agtttagaat cattccaaat aagtatccga aagaagcgga ttttgagggtg      360
aaagagacaa gaaagcgacc ttttggggct tgaattcgct ttgtaggagg ttgatttgcg      420
atttatatat aaaccgtttt catttgtata tagatcggtt ctaatttata tataaatcgc      480
ttttgattaa atatagattg attgccattt gtatataaat cggatagccc taaaggccct      540
atcgagggcc ataaataaag agacacgcgc aggttcacta tagaactcgc gcgtgtctct      600
ttattttgag tgctttatgg agaggatctg ttccttttat ttgtctgata cagcctcccc      660
tttattcaaa tactgcgatg tcgaattatc tgtcggggcg acaatgccga ccgcaaagct      720
cgcggtgtgg aggtatttca gtactcataa tttattatcg tttagtcgtt tattaaagta      780
attcattcgt tcgaaagact gttcggtcgc aacattaagc tttctgtaga aactctatcg      840
gccggcaaat atagcgaagc cgaaactaca gggaatcgta attgcacatt caattatcaa      900
gtgcaacggt ctgccattt tatccgcggg ttatctgttt aggaatatgt gaagggtgaa      960
aagggtttaa agattcggca aaatagt                                987

```

(2) INFORMATION FOR SEQ ID NO:899

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 407 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...407

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:899

```

gccggacgaa atgtcttcga aattacaccg acgctcgagt ttccaaccgc gttccaagtg      60
ggagtagcat acagggtatc cgatcacatg ggtatagagc tcatgcaggg tatcagcttg      120
gcgaggcagt ataccatctt atggaggaac atccacttgg tcgatcatca aaaagagagc      180
taccgtacct taccgggatt tgagtttgca gtcggactac aattctatcc tttccgctga      240
cgatcagtgg aaatggctgt acagagttca caagcgggtg gcacatcggg caccgcgcga      300
agcgaacgat cctctttcct ccggactgac gaatctcgca ccgcgtgtgt gcgctgcgat      360
atattccaac aacatgccaa agacttcgct ctatagtaag ggctgtc                                407

```

(2) INFORMATION FOR SEQ ID NO:900

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:900

cgcacggcaa	tctgtttccg	gcacgaagca	aagatgctcc	ctccgataat	atcagagaga	60
gcattttcgg	aacgacgttt	ctgctcataa	caaccggcca	tgcatagtcc	aacgatgcca	120
aaagctgcgc	cagccgatcc	acaccttgtg	cagaggcttg	tccagcatag	gcttcacaaa	180
catattcagc	tcggcagcag	ggtaatcttc	agtctgggtat	catcgggtgc	agcctctttg	240
agctgatcca	cacgttgaaa	ggcatgggag	agcgttctgc	ctcgaatttg	atcagtcgtc	300
ctgacgacgc	tctactattc	gcaaagtaat	ctgccccacc	ggatcactga	tagcgtacag	360
ctatcactgt	ctatccccgt	cagcttaatc	ttccctcggg	cagtttatcc	tccatcccct	420
tgagattgga	g					431

(2) INFORMATION FOR SEQ ID NO:901

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 441 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...441

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:901

cacacaataa	cttgtgctgc	atttttcttat	tgtatttttca	gaaaaagaac	aaccccaatg	60
acactccact	ttgtgtcggt	ggggttgttg	ctttagaata	agtgatcaga	ttattttctta	120
gctgctttgt	tgagcttgcg	cttttggtct	cgtaggcaag	gggtgtagca	acaaagagcg	180
tagagtatgt	accgatacga	taccgagcag	gatcgagaac	gtgaaactac	gcacgcgtagc	240
acctcaaaga	tgaagattac	caacataacg	ataaacgtag	tcaaagacgt	atttatgttc	300
gacccaatgt	tgaattaagg	gcacgtttga	tcacctgata	gcgtctctgt	tgggggtacaa	360
tttcatcgtc	tctcggatac	ggtcaaatac	aacacgggtgt	cattgagcga	gtnaccgatg	420
atagccagaa	tagcagcgat	g				441

(2) INFORMATION FOR SEQ ID NO:902

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 515 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...515

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:902

ggcttcgggc	ttcaatgggc	agagcttcgc	tttcaaaggc	tacctgccct	cggagaaaat	60
gagcgtttgg	ctgctttcaa	agaaatggag	acgcggatta	taagtgtcac	gagacgcaga	120
tcttcacga	aacaccttat	cgaaacgcaa	actggtggac	gaactcattc	gccactgccg	180
gccgacgacc	aaactagcat	tgcttcccat	atctcctgtc	ccgacgaact	gattcgtact	240
cgtacctctc	ggaatggaag	aaagggaagc	ctgcactaca	taaaattcca	actacttctt	300
actctataaa	taatagatga	caccactacc	tcaagatttt	gtcccgcctat	gcgcccactg	360
ttagggagcg	aagccgaagc	tttttttgca	gcctcgacag	ccctgcacct	gtaagcatac	420
gtcgcaatcc	taataaancg	gcatcggtac	cactgtaatg	gatctgcca	ccaataagtc	480
tgtgccctgg	gtccctcggt	acatatctgg	ctgag			515

(2) INFORMATION FOR SEQ ID NO:903

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 395 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...395

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:903

caaaccggcc	accacattgc	ccatcatatc	gaagtgaagta	tcgcgccacg	accgagcctg	60
ttgcccaggt	aatagcgatc	ggccacattc	ataccgcca	atagcctatt	ttaccatcta	120
taacggctac	cttcgggtga	ttgcggtgtt	tacggcgctg	gacagtatgg	ggaagaagac	180
cggcataaaa	ggatagcttc	cactccggct	cggcgcgatc	gtttccagta	gccacggccc	240
gtagccacga	acccacatga	tcgaatatga	ccctcacctt	cacgcccctt	tgcaacttgcg	300
tataagcaga	tcggacaggc	gactgcccag	atgggtcatcc	tcttgacgta	gaactgaata	360
tgcaatgggt	ggcgggcagc	ctctatgtcg	cgaag			395

(2) INFORMATION FOR SEQ ID NO:904

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 611 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:904

gccgacggcc	ggaatgtact	tgccggtact	cgccctgccga	taacgactcg	ttggtgctac	60
gggtgatcaa	cggtatgcg	ccgttcctg	ctgattcgca	ctgatcgacg	aatcgatcac	120
ctacggttca	tcgcaggaca	gtgcttcggg	aagaccgaag	aggagaatag	cgaatcgtgg	180
tggtaatcgg	gtatacttat	ggaggaagaa	cttcagtacc	ggatgactcc	cgagatggcg	240
gagctttcga	cgaagacgat	gcagaggaca	tctcggacgg	cggactcgac	ccgggggaaga	300
ggacagatac	gaacatttcc	gactgtagc	agatccggga	cagcacttat	tcgtatcgac	360
aaattccttg	tcgacaggat	gaacaacgcc	accgcagccg	tatccaacaa	gcggctgaag	420
ccggtgccat	attcgtcaat	gccgaccggt	aaagagcaac	taccggatca	aaccgggcga	480
tgtggtcacg	tggaaactnct	ccggccacga	cgggaattgg	agatcattcc	cgaagatatc	540
cactcgatat	agtgtatgaa	gacgatgtac	tgctcgtgat	caataagctg	ccggattagt	600
ggtacacccc	g					611

(2) INFORMATION FOR SEQ ID NO:905

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 375 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...375

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:905

ggaatgtgcc	gaacgaacct	ccgtccaaat	cgacacggcc	ataaggagca	gtcccaaatt	60
atccgtacgc	atattgacac	ttgccccaaa	agctccggac	cattggtgga	agtaccacaca	120
cctcgtcgca	cctgaaggtc	ttcgatgaag	aggcgaagtc	gggcatattc	acccaaaaga	180
cggactgaga	ttcggatcgt	tgaggggtac	tccattggta	gttatgttga	tcgattggc	240
atcgggccac	gcacgcgaaa	gccggaatat	ccgatacccg	taccggcatc	gctgtggcta	300

ccacggaggg agtcagcatc agcagatagg ggatgncacg acctaattgg acttggaag 360
 gtcggccttg cgaac 375

(2) INFORMATION FOR SEQ ID NO:906

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 704 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...704
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:906

atcccccttac	gtggaccata	cttgccacct	ttttggctgt	attgtcatac	tottttataa	60
gagatacaag	gagaaccaag	ctcgccgtcc	tgtggtgaac	ctgaggcccc	ggctattccg	120
gcttatgacc	gagctattgc	agccttgaat	cattacgtgc	aaaaaaactg	gtggaagccg	180
gtttgtataa	ggaatatatta	cggaattgac	cgatttgctt	cggagctata	ttgccgaaac	240
tcgcgaatag	atgccaggga	gatgaccagc	agcgagatat	tacaagctct	tcagggatcg	300
aacttctctga	aaaaggaagt	cgcttgcctgc	atggaatatt	gcaacggccg	acctggccaa	360
gtttgccaag	tataaaccga	tacatggaga	ggtgtggaag	ctattcgaga	tgctcgcgcc	420
tttctcgatg	aggtgcataa	ttccgggagt	catgacattt	gcatactctg	aattgctttg	480
gctgctgatac	tgctgccttt	gatagcgact	tggtatatcc	tgcaagcacg	taagacttcg	540
caacgatgac	catatcttca	ttgaagccct	ttgaaggaag	tcgccgagtt	tgaggggtcta	600
tctgcgccat	tcgttgccga	tattgagagc	tctttcgtcg	gttttctcat	tattgctttg	660
gctcgctccgc	agaataccaa	tagctgcaga	aagattcgat	cgag		704

(2) INFORMATION FOR SEQ ID NO:907

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 388 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...388

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:907

aaaccggctt	tcttgcgccc	gncttttgcg	ataagcatag	acgcctaccc	cacaagcaat	60
gggagcagca	gcagtaagta	taagtattcg	ggtgaataaa	tctgaacatg	ggaatctttt	120
tacgggttgg	aacgaagaag	tgtattggaa	gcaaaaactc	tgtcagcaac	aagagaaaag	180
caataagggc	atagacaagt	atttttcctc	ataagccttg	aagctcttgg	tcataagtct	240
cgtctctcca	atttgctgat	ttccttgtag	atttcattca	gcgtttcatt	atcgacagccc	300
tgaagtattt	tccacccgat	acctcggcaa	ttccgtccaa	tgtggttcgt	ctatatcgac	360
aggcacattc	tgaatccgaa	ctccgaat				388

(2) INFORMATION FOR SEQ ID NO:908

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 447 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...447

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:908

agcagcatca	cctgctgtcc	gtgctcggtg	atgtctgtga	taaactcacc	gtatcggcat	60
cgtaaacagc	cgccccgcag	gggacttcta	tgatacgacc	tctccgttcg	ctccgggtact	120
tcgcttggtc	ccgccgctct	gtccgttgta	gccatgatat	gacgggcata	gcgcagatgc	180
agcagtgtcc	aataatccga	ttgccacgga	gaaagacatg	tccgccacgg	cctccgctgc	240
ctccgcgggg	ccaccttttg	ggatatactt	ctccctgcgg	aagtgcgtag	agccctccct	300
cccttgcccg	aacggcagta	tatcttgacg	taatcgacga	aatggactct	gctgccatac	360
gatggattta	gtagagact	ttgcggaact	tgccacaatg	ggagcgatac	gcaaagcgat	420
ctcttctatc	gtccccgtac	caccacg				447

(2) INFORMATION FOR SEQ ID NO:909

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:909

cgctcttcta	taaaatgcgt	gatgtccatt	cctttcagat	tctgttcttc	ccgatacggg	60
acaaacgctc	cacctcgca	tccagacgat	gaccgatcgc	tccagcagga	tatgcgtatc	120
ggacatatg	cgcgatgct	gtccgacgag	gtaatttcgt	cgaagatgcc	atccacattg	180
gtcagattga	aattgcgcaa	atggacaagc	acttggcacg	ccagttgctg	cggcgtatca	240
tcggaggacg	aaagtcagac	cgctctttcc	ggtagtgctg	tagcgcaagt	gtccatgtag	300
cactctccgg	catacggtat	ctgagaggca	gcaaattcgg	catgcccagc	tcttctcgag	360
aataagcctg	aaaatccttg	tgtaccgagt	cgatatctcc	gagatggcat	ttgcccgaag	420
tgctctttct	ctgaag					436

(2) INFORMATION FOR SEQ ID NO:910

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 585 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...585

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:910

ctgaagaatt	gtaccatgtc	tgccaenttt	ccgttggatg	ttcgctcgga	acaaaagcca	60
gattcacttt	cttcttcggc	ccgctcaaat	acaatatgta	cgcgcttacg	acaaagggat	120
gaaagccgag	gacaacctcg	atctcgacac	tgggtctact	tgggtgccag	tatcttccga	180
tggatcaatc	gttatagatc	attccggcct	ccacattcct	gcagcagtat	tttagcaact	240
gggggtgata	attcttttgc	tcacgctggg	gatcaaaactc	ctcatctctc	ctctgcttac	300
aaggggtata	tctcctctgc	caaaatgcga	ttgctacggc	cgcggtacaa	gagatcaatg	360
ccaagtaccc	gggcanggat	caggaatcca	tgtgaagcgg	cagtctgcta	ccatgaatct	420
ctatcgtgcg	gccgggtgcag	gccgatgagt	gggtgcttgc	ctatgctctt	ngcagttccc	480
tttctcata	ccatgtacat	gtatttccct	acgactatcg	acattcgtag	cagagtttct	540
ctgggcgga	gacctctcct	ctatgatgct	ggtttcagct	ggacg		585

(2) INFORMATION FOR SEQ ID NO:911

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 884 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...884

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:911

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ctacgatgct cggcgccacc ctgctaaagg cctataaaact ctacaaggag gcggaataga      60
aattttcaga gaacacatga ccggtgctcct cgtgggcata ttgtggcctt catcgtagca      120
ctggccgcga tcaagttctt tateggatcc tcacccgata tggttcaag gcattcggct      180
attatcgat cttggtggcg gtctgcttat cgtattgatg ctctcagggg tacccttagc      240
tgtctaatacg gaaaaatgaa acaataaaat cgtccgctcc acctgcgcga gggaaagtac      300
tatacttcga caaacctctc acatggactt cgttcgactt ggtaataaat tccgctatcg      360
ggcttgctcg cggatgggta tcaagaagtt gccgtagggg atgccggcac attggatcca      420
ttggcatcgg gcgtgatgat ctgtgcacgg gacgtgccac gaagcaaata gatgtgctgc      480
aggccggcac aaagagtaca ttgccgccat cagactgggt gctacgacac cgagtttcgc      540
aaggaaacgg aaccggatgc tttcttcccg tacgaacata tcacgcgcaa tcgatcctgg      600
acatactacc tcgattcacg ggaacgatag aacagggtccg cccatattct ctgctgttcg      660
cgtgaacggg aaacgcgcac acgattggct cgaaagggga aagagggtgga gatgaaaacc      720
cgtacgttgc agatcacgag atcgaactac tggagtatgc cctacccttc atcacgctac      780
ggatgtatgc agcaaaggca cttatatacg tgctctgggt cgtgacattg ccaagccctc      840
gaatcgggag gacatttga ggcattgcgc aggacaagag tagc                        884

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(2) INFORMATION FOR SEQ ID NO:912

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1020 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1020

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:912

```

gtggaggatt tgttgtctta tataggaagt atcagctatc cgaacagcaa gcgaagcatc      60
tggtcgggat ggcgcagatg ctttgctctg attttgagga gtggtaccgg acgagggtgc      120
ggaaactaacc aaactgcccg gcgtaggcgt aagacagcca acgtgatagc ctccgtcgtc      180
tacggcaaac cggccaggcc gtagatacgc acgtattcag agtatcagaa aggataggcc      240
tgaccccggt tcgaagtctc cgtagagac ggagcgagag ctggttcgct atatccggat      300
gtgctgatac cgaaagctca tcaactggctg atcctgcatg gacgtacgtt tgtctggctc      360
gcaagcccaa atgtgcagac tgtggcatag cacattctgc cgctactact cgaaagtttt      420
taagaagaac agtacagccc tccgaaaaaa ggggaatgat aaggcctgtt gtgcaataa      480
tatccgcaca atgctccata ccttaattcc ggaggcaata tgaatcgaga aagctttttc      540
tcctgcttgg tctcttattt gctctcccgc tccatctgca aagcatcgct ccatgcaaca      600
acatggcaga tacgacttgt atatccgatt cggccaaatg tttcctcctg ccatcggtgt      660

```

```

ttaccatgta aaaccgatga aaaacaattg cggcattccc tgccctcttgt agctgcttct 720
ctccttactt tcaactggat gacaatatcc gagagcttcg ctttaccggt gccgggagct 780
ttcaaccaag atagacaacg tcagtcagct cggttcctctt atggcacagc tttgatgagg 840
ggattcggct ataagggacg cagcaaatca tggggaaaaa tgttggtgctg gatgccttgg 900
gtatggcact tatgggtgga atggtcaatg cggaaaaatat tcgttcggac ggttgcgctc 960
ggatggaact gctgccaatt atacccatca ggacatacgg caacagcttt cgccctgcgc
1020

```

(2) INFORMATION FOR SEQ ID NO:913

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 353 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...353

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:913

```

tgcgatgtga aattcgattc cccatgggtg atgggttttta ctatatttgc ggccaagaat 60
gctcctatcg agagtataaa actcttttgc aaaagtgcta taggattgat atagaacgat 120
attgacaaac agtttacgac caaataaaaat gaatatgcca catatactcc ccggctcatc 180
aggccgggtc catccccccg tatccgcat accgccccgc cttgttcgga caaagcaaga 240
atatacctatg acaaataaag aagaataacg cttccatagc ctcctcaaag agtcaggcac 300
ccatcgagtt ccctatagaa ctggtgggtg cctttgtttt atccctcccg aat 353

```

(2) INFORMATION FOR SEQ ID NO:914

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 924 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...924

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:914

cgatccggca	gccggatcgg	tgetggccat	agccgaagct	ctgaccaatt	cgtctttgct	60
ccgcttcgta	atggtatcga	gggtgtgagc	ctgtcggcaa	ctggatgtgg	ccctgccgta	120
acgaaggcga	agatgcccg	ctgtacctgc	cgtggaagcc	tgctcgga	ttgccgtcga	180
tctgggcac	aacatcctac	cggcaaggac	tctctgtcca	tgacacagaa	atatgaggac	240
aaaaagtgt	gagtcgccg	acggtgatta	tcagtgcgc	agccgaagt	acagcattcg	300
tcgcatcg	agccccgtcc	tcagccatat	agccgctacc	gcttctacta	tatcgatttc	360
agcttctgcc	cgttctcatt	gggaggatcg	gctttgcccc	gagcttggt	actatcgggt	420
atgaagtccc	cactgtacgt	gtccggaata	cttccgcgat	gcgttcaata	ccgtacagga	480
actcattgac	aggtgtcgt	tctggccgga	cacgacatat	ccgcaggcgg	tctgattacg	540
ctcttctgga	aatgtgcttt	gccaatgtag	taggcggtct	ggaggtggat	tggtataacct	600
cgtggaagac	gacctgatca	aagtcctctt	tgccgaaacc	cgggtatcct	cattcaggta	660
aaggaccgca	aagccgttga	taagatctga	ccgatgccgg	catcggtttc	ctcccgatag	720
ccaagccgac	ccaaggcgac	acctcttgat	acataaagac	ggagccgaat	acctgttcgg	780
tatcaccaca	tgcgcgacgt	ttggtatgag	tcgtcctacc	tgctggactg	cttcagagt	840
gcaatacctt	ggccggcaac	cgttcgaga	ctataggaca	cctcgatat	cacttccag	900
catttacggt	gatctgaagc	gatg				924

(2) INFORMATION FOR SEQ ID NO:915

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 462 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...462

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:915

cgttcgtcag	tattgccgct	ctcctctttg	cgggtgtg	cactaaaaag	tcgccccgtc	60
tccccccaca	gtgaagcctc	ttccggacac	ggtgattgag	ctcctgtcat	cgaaccgtgg	120
gtcagtcgg	tgagagagga	aatgcgtggg	tatggctgac	caccatata	ggactcgact	180
ggccacaacg	ctccgcccta	cggccgaagg	actgcgaaaa	cagagagaag	aactctgccg	240
tattcggaca	ggctcaagcg	tgagaaattc	aacactgtat	tctttcaggt	gcgtatcgcg	300
gagatgtcat	ttacccctct	gagatagaac	cccaatcgac	catttcaccg	ggacaggcaa	360
gccggactac	gaccgcgtgg	agtttgccct	aaagagtgcc	acaagcgang	tctgactttc	420
catgcgtggc	tcattgtcac	cccttangac	cggataaaca	ca		462

(2) INFORMATION FOR SEQ ID NO:916

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 450 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...450

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:916

catgtcgcag atgtgtcatt ccattccctg cgaacggaga taggctatgc cttctccata	60
tcctccggcg tatcgattcc tatcgtaact tgctgtgttg cagcactcga atccgatagc	120
cgtattccag ccagcgaagc tggtcgaact ttccggttg cctgcggtac tttgtggcag	180
tgaggttatc ttgcggggac ggctgggcca aaggcataga tcccgatatg cttgtagtaa	240
gtatgcgacg gcaccaagag tcaggctgta ccccccctgag atatgggata acgggcggct	300
gaaataaagg gcatagcctc catgatccaa tacgatcttc ggggtgtttg attgttcaaa	360
cgctcgaagc ttacgtcaga cgagaaaact tcgctaactg anctatatcg gtttctggtt	420
tgtcgaaggc cgaaatcagc aatcgatctg	450

(2) INFORMATION FOR SEQ ID NO:917

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 432 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:917

tcgtattgaa acggcgggca aacttgctg ccattctccat gttttgctct gatcttttcc	60
gacaggaact ttcacggcac gatggatcag aatgtctgtg ccattcaatgt cggatatgtg	120
agcaggccgg cattgacatt gtccggcgct tacgggcttt ttcccttgaaa gatgtcgttc	180
gtccagctc gcccaatacg cattcatatt cagatagaga taaagctcga gcacctctct	240
tacatactct gtacatagat tgtagccttc tccggatcga tcccgcaagc caaaattcag	300
ccagtatcgt acgcacattg cggactatat tatccggatg cgggtgtgtg tcagcgaatg	360
ccaatcagca ataaagaaa agcaattata tcattgctgca tatccagaaa actccgaata	420
gcacccaaat aa	432

(2) INFORMATION FOR SEQ ID NO:918

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 411 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...411

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:918

ccaatgcggc	tataatagac	cttcgtgccg	gcaggatatcc	gcaggctctg	ctcgactcga	60
agcacgcaag	agcgaaccca	aactatggat	gctgttggct	tggcatatgc	ctacagcgaa	120
aaatgggctg	aagccgagag	ctatcttctc	gcgctgcgca	gcaaggccgg	cccggagcac	180
aacacaatct	gaacgactgc	gacgctatat	gcaagacaat	ctctaaatgg	aaaaagattc	240
ttagaaacaa	tattcacttt	taaaacaaaa	acgagatgaa	aaaaacaaag	ttttcttggt	300
gggacttgct	gctcttgcta	tgacagcttg	tnacaaagac	aacangcaga	accggttgn	360
gaaactaacg	ctactgttag	tttcataatt	aaagcgggtga	gagccgcgct	g	411

(2) INFORMATION FOR SEQ ID NO:919

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 386 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...386

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:919

atcgatatcat	tcctaatacta	cgggatagga	atacttttct	tctgaaccga	taagcccata	60
gatatgatac	agaatatcct	cacagccata	acgggtatgt	cgtcctcggc	ctgattattt	120
atcgtttggg	tcgtctctgg	aagcgaaaga	ttcgggtgga	gcattgctccg	gttggttcac	180
caaataccgat	tgtgcctatc	ttccaaggcg	acagagaaga	agaacaatcc	atcatccctc	240
aaataaactc	tcatgaaaac	aggacggcaa	tactatcccc	tcagtatccg	gcagggaatct	300
tctctatcct	cattatttta	ttgatagtct	ttgctcta	accgcttggt	acaacggcat	360
gtgggttttg	gtagctgcct	tgtggg				386

(2) INFORMATION FOR SEQ ID NO:920

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 625 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:920

aatcagctct	gcagcaaaag	agctcgatga	aactcccatg	caacagtcta	ggatgcagtt	60
gcaaccttct	gtatcaaaaa	ctcaggtata	tgcttgatc	ctaagcaact	tcggctttat	120
cgaggacgat	tgcttagttc	gtaacggggt	gaccgcagcg	caccaaactcg	gcatggctga	180
tatgccttgt	tccatgggaa	gtgttttatt	gccaaagaaa	accgtatgga	tgtaaagtga	240
atctgcggtt	gattctctgt	attggtcgta	atgatcaact	ccccctgagg	ataaactgcg	300
gattgagccg	aatcctaact	cgggggaata	ccggcgaggt	caggtatagg	tggggctgcc	360
cggacagtca	gggtagaatc	ccagcatgga	atgacaagcc	aagcactcat	cgtaccggca	420
tcgtcattac	cgggcaagcc	gtaggagcat	tgcaaaaatg	tttgtctatc	aactcccggg	480
tcaattttctg	gttcgccatg	cttccttggg	gaaataggag	aagaggtaag	gataggcgag	540
tccggctcgt	tggtcggatc	ataatatcct	tcatcgaaga	cttttctgaa	ccttttccga	600
aaaaaccttt	gctcctncca	tcage				625

(2) INFORMATION FOR SEQ ID NO:921

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 662 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:921

cgccgtgaag	ctaaaagagt	acatcgaaaa	caacatcatc	cagatagcac	attggcctat	60
atgagaggac	gtacgctcaa	cgatgccgtg	gtcattctga	cgaagctcag	aatacgaccg	120
agttgcagat	gaaaatgttc	ctgacccccct	tggtgccaat	gccaaagatga	tcgtcaccgg	180
cgacattacg	cagaccatct	tcccagaggt	gtgcactccg	gtctgcgtca	ggctctgaat	240
atcctcaagg	aacgagaggg	ataggctata	ttgcattcca	acgcgctgat	ataggcgcca	300
tccgctcgta	cagcgtgtgg	tggatgccta	cgaccgggtac	gatccgaacg	gaaaaaggag	360
gccgaagccg	cagctgtcgt	tgcgcaaac	attagaatca	ggcgatatcg	atattattac	420

gaatcactta gcatacaatt ccgatgaang aaacattagc tcgtaccgac ttcagactgt	480
cgggacagaa gccgtatata acggcaaggt gcgcgacgta tacacgttgg agaattgatct	540
ctggtcataga tagccacgga tcgcataatcg gcttcgacgt agtncttngg ccggtatcct	600
tacaagggtc aggtactcaa atcagatagc ggcacacacc tcgatgccac ttcgcgatat	660
ag	662

(2) INFORMATION FOR SEQ ID NO:922

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 456 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...456

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:922

cgccatatcc gacccccaaa aaccgtcagc ggcataaggc ccgaacacta caatccctgt	60
tcttctgcct cttgcaccgc cggccggatc gtgtcgcttc ctcggtgccg atcagtcgcc	120
tgctgcgggc atgcggattc agagccagac ggctatccgc ggacgtacta taccgaaatc	180
catgctggagg ctgcgacgaa agccttcagc ttgtccagga tttgctcccc agtgataagc	240
gatggacgcg tgctatcggc tcgtgcatcg ttaccaaagc tgtgcggagc ttatctgcgc	300
caggatcacc agcgcattct cgcctctat gccggcttgg gccgcaagta ttccgtatgg	360
cctttgtatg gaaagatgtc ctgcggcatg gcgctttgtt gatcggcatg gtcaccagca	420
catccgcacc gccttgcttc aggcttggat ggccat	456

(2) INFORMATION FOR SEQ ID NO:923

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1116 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1116

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:923

ctccgttccc	atatatgatt	cagacgatcg	aaaacagact	gataaacggg	gcgaactaac	60
ccttgaggaa	gcccttctgc	tggcctcctc	tgccgatagg	aagcactcta	cgaggctgca	120
catcggatca	cccggtatth	catgggcata	agttcgacac	ctgctccatc	atcaacgccca	180
agagcggcaa	ctgtccgaag	actgtaaatg	gtgtgctcaa	agccgccatt	atgccgcttc	240
gataggaaat	acggacttct	ttcggccgcg	gtttgtgccg	ancangccgc	ttacacaggc	300
ggcaaggcat	cggacgcttt	tctcttgtgg	ccagcgggcg	cacgcgtcta	tgaacgagat	360
acgacagatg	gccgaaaagt	atcgtgccat	cagcaacgaa	cggacatcaa	atgctgcgcc	420
tcttttagggc	tgctctcgga	gagaaaactgc	agatattatt	cgacaacggg	gtgaccacct	480
accactgcaa	atggagacgg	ctccgagttt	cttcccctcc	ctgtgcagta	cgcacacgcg	540
gacgaaaagc	tcgccaccat	tcgagctgca	cgcctgtgtg	gaatgcgtta	tgagtgggcg	600
gaatcatcgg	catgggggag	acgatggagc	agcggatgaa	tttgccttct	acctgcacag	660
catcaatgtc	tactccatcc	cgatcataat	ctgcagccga	tccccggcac	tccgctggag	720
aagactctgc	ctctagcgaa	gaagaatacc	tcacgactgt	ggcactgttc	cggctcatca	780
atcccagagct	tttcttcgct	tttcggggag	acgggcacaa	ctaagccctg	ccgtcagcgc	840
aaagctatat	atataggtat	caatgcagcc	atcacgggcg	attcctcacc	acgacgggaa	900
gcaaagccgc	tgaggatatg	cagctcgtga	ggaatgcgga	tttcaagtga	ctaacgatac	960
agactgggag	gtaagctatg	ccattgacga	aatgctgcgt	ttggatcgca	accacctttg	1020
gcatccctaa	catcgactat	agatccattg	ccgtatttcc	gtgaagcggg	ccgaggagac	1080
gcatctatct	ggaagacggc	cgcgaactga	tcgacg			1116

(2) INFORMATION FOR SEQ ID NO:924

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 394 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...394

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:924

caatagccta	tttattagtt	gccttggggc	tgctattcct	gtaattgcag	aaaattcatc	60
gagaatgaga	cttcttccga	agaaatgagc	tatgaagatt	caaaaaacag	ctctttgagt	120
gcagcgagggt	agatgacctc	atcaaaactat	taataaatcg	ggttattgcc	gtccgataaa	180
agttgtttga	ttgctcccag	ctttttgatga	tataaaaaag	caggtatcga	tcctccagga	240
tcgatcctgc	ttcattcaaa	ttaaatatca	tottatccca	ttattgaact	atgagaggga	300
ctaagctcct	gcttccttgt	tgaagtttaa	aagtgatttg	tttcaccctt	gccgaaagtt	360
atcttccctat	atatacgtnc	taaagatatt	gggc			394

(2) INFORMATION FOR SEQ ID NO:925

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 295 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...295
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:925

cggcgaatct	tcatcttcac	taagtgggtc	tacctgatct	tcaggagcag	taccagttcc	60
tgatgagtag	gaatggcttg	tttacgaatc	ggacaattgg	attctcgggg	tctatcaaac	120
tcaaataata	aggtgtgata	gccattcgag	tactttgagc	gattctttta	ctccctcttc	180
ttcttcagcg	gtgagttaac	gtactttttc	agctggtcga	gcgtctcaat	tcgattgagg	240
acctgcaatg	ccagtcgttc	cattgctcat	cggatgaacat	cagggaaata	atact	295

(2) INFORMATION FOR SEQ ID NO:926

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 357 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...357
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:926

cgcggttgga	aactgtgcaa	aacgaaccac	ctcggtagca	ccgaaagagg	tctcgtctca	60
ataagtcac	tcacgggttg	ccttggtcc	ttccttatag	ccttttcgag	agaagacaat	120
acatcgccat	agacagcact	cttgccgtct	tacggatcca	gtctgcgaat	gctctttcct	180
cggcacgctt	acgaccatca	cgtcaagacg	agcgagaccg	cggttcatac	cgatcgaatt	240
cttccatagt	tagcactctg	agcatacttg	ctggcatatt	tgatacgggt	agccgatctg	300
cgctcatggc	ttccttcag	atgcctttgc	ttgantaccg	cgacttcgat	acgaggg	357

(2) INFORMATION FOR SEQ ID NO:927

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 342 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:927

cgcaagcgtg cgatacgctt cgtcttttggg ataattggtg caatagctca gagacgcgct	60
ccaagcagag aagcattaaa gaccgtatcg ttgccatcaa ggggctatac gaaaacagga	120
agccatctct ataagcagta cgatgtaac cttaatcaca aattgagccg ccgagagagc	180
aacatcaaga tactccgttg gcgtgtaacc tcatacgcc ccatcagagc cgtagcgcag	240
aaattgtagc cacaaccgtc ggcgtatatt tagggaaaag gaaaagtctg cgcgttgcca	300
atcaaaattg tacccccagc aagccccact atagtcacca gg	342

(2) INFORMATION FOR SEQ ID NO:928

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 521 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...521

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:928

anggggttat tctttcagga ctttgcattg cacatgattg ttgcacagta gccgactgct	60
aacgcagata ctccgttatg ttcttttcta ttctttctcc agattgctca ggtctgcctt	120
ttcgaagggc ttacctacca ctgcctctac aattctatgt accgctccga cacactgtcg	180
cagtatgctt ccgtcatttc ggtatttgcg ggccgggctt gccctggaaa ccgttctcga	240
tcagcaactga cgaacaaact ccttgataaa ctgcttctgg gcttcgcccc gttcaatcgc	300
tctgatagc cctcggcata gaagtagcga gaagagtcog gcgatgtatc tcgtcgatca	360
ggtagatctt accgtccttc ttgcgaatt cgatttggtg tccacaaaaa taagccccctt	420
ttcagcagcc atttgagtac ccgtcgaata agtgcgtaag tatagcgttc tatctgctcg	480
tagtcctctt cgacaccagt ccctgagcaa tgatttctg a	521

(2) INFORMATION FOR SEQ ID NO:929

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 338 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...338

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:929

cccaacaaga actcggtaaa aattatcggg gacaatacga ataaatactt caggcttact	60
tcgcttacga ctogaagtaa atcgggtgga ttcacctgtc gcaccttcgt ttcggcgata	120
cgccatacag ttctacctac cttgtgggac accggacttc gtggcttgcc acgtgcctgc	180
ctacttgctg atgtacacgt gctgaaagggt ctgaagaaaa aaggaaacttt cctgctcaat	240
togattgggc tccggaagat atagaacagc atctgcccac caaggtaaag cgtttttggc	300
taagaacaac atccgattct acacgattaa cgctactg	338

(2) INFORMATION FOR SEQ ID NO:930

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 342 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:930

gatagtgcag acaagggtgac ggtggagctc gtggacaagg gcgaagggtct ctatatgcct	60
cgtatgaagg tcaaaactgc tctgaagggtc gtccgtatga gcgtgccgag cgtgtccttg	120
atgtgcctta cgctctctcg gtcnagcgaa tagaacaaca gcgggtggatc ttcactctcg	180
gacaacaacg aacacacggg ctgtaaacaag agcattttaat agtgacaacg ataaatatct	240
gaacgcctta ttcgacaata catccctaaa gattcttcgt tcatcgatat aacgccaac	300
agatctccat tatgagacct ttgaaaaata ataagtggag ga	342

(2) INFORMATION FOR SEQ ID NO:931

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 329 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...329

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:931

cagaatctta	ccgaatacca	cgagcaagaa	tacaatcatc	aacgctcccc	gatgcggtag	60
cggcgtagcg	ccttgatggt	caccggattg	tttgtctctc	ctgtttcata	tcggtgtttt	120
atttcttgcg	ccgatcagta	tcgacagacg	gtagagaatg	tatggcggag	tctgcgagag	180
tgtcagctcg	aggtttgcga	ttggatggct	ttctctacat	tcagtttctg	actcatagca	240
gtaactcaga	agctttgaac	agggcacgat	agcgataatc	tttcaactggt	tcctcagacg	300
gcctatttcg	cgcacctgct	cgatggctt				329

(2) INFORMATION FOR SEQ ID NO:932

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 785 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...785

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:932

agtgtcgagg	gccattttct	gtgctatagc	cggacccttg	atgtcgtgta	gataatggag	60
aggagtctgt	ttctgggtgc	attcattttc	cgcagtcttt	attttgtctg	tatctccttg	120
ctgcatggat	gataagggta	atgatgggtc	caccaacagt	gtggatatta	tgataagggc	180
aatatgtaat	ttgcgactaa	atgtaattcc	tggtttttca	gtgctatttc	ggcctctttc	240
tctttctttt	gaaccgaatg	tcaaactccg	taattttttc	ttgcatctgt	ttggggcaat	300
agagtcctgc	agaagtttgg	atcttttttg	gcattcataa	gccaagagta	caagccgtat	360
tcggcatata	tggaactggc	tatatccaat	atgccaatct	ggtttgatta	taccggcat	420
ggcatgccaa	attttctgcg	atgtgagcac	ttcatttgct	ttgcctgatt	cgcttctcca	480
tgcataataa	atgcaagatg	tgcataagat	agggcctgga	tctcgatata	atttattttg	540
atgctattgt	aagagcttct	ttcaaaggct	tatagctatc	ctcaggattt	tctcattgat	600
cataatttgt	ccgatattca	tgagactgtt	gcacatatta	cactatcacc	attggttcgt	660
tgtatatcca	aagctttggt	ataataggag	taggcttctt	gagtatttcc	ttttttttga	720
taaatggtag	ccatgtgggtg	taggctatag	agataacctct	ttcctccttt	ttcttttgag	780
cgatt						785

(2) INFORMATION FOR SEQ ID NO:933

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 813 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...813

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:933

```

ggacactaat ggtgaaaata gccaattgtc ggtttgctgt tgttataaaa acaatatctt      60
tggtcccatc gtagtggtcc ctgctcgtct cgaacaagtg agtgggggtg aagaggggaat      120
cgggtgagaa tcccgagcag tcccgctctg taagctttta ccgccgtgtc ggttttgaca      180
tgccgactct tgtcgcttcc aaatgatgcc actgttcatt ctccactatt agaggtggag      240
ctgaagggaa ggcgcgacaa acagaaaaga gatgaagtaa gccagaatac ctgctctacg      300
agttgcctat aaagtatgga gagaagacct cgaggaaagg agttccccgg cactaagaga      360
atagatctca ggaagtattt ttttacaata actattacaa tggaagaggt aatccttcgc      420
atcgtaaaag gtgatggcca ttgcagtcgt tcgatccgga aaaaatccgt caggcgataa      480
tcaaggctta cgcgcaggag gtgtgcacga agaagctgca cgtatcgaca atattgtccg      540
tctgtaaccg attttgctcg tcagagcggg gagcttgcca ccgtggaaaa atacaggatc      600
gtgtcgagga ggaactgatg cgtttgaatc ctttcatgcc aaaaaatata ttatctatcg      660
agagtggcgc accgtagagc gtgacagcgt acatccatga agcatacgat ggacggcatc      720
gtaacgatag agaagacgat gtgaatctgg gtaatgccaa catgagttcg catactcctg      780
caggcaaatg atgacttttg cttcggaagt aac                                     813

```

(2) INFORMATION FOR SEQ ID NO:934

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 519 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...519

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:934

acgttgaaac ccaacgacca caagctctcc gcattaccca gtagcacatc ttctgcaa	60
aaccggctat atccgccgca aaggcatttc cggcctgata tctccggtgt tgtgagtgt	120
ttgggtctga gcggatgtaa cgcagtgaac agccatggag aagttctccg acaactggcg	180
gctatagccc aaatcgcagc aaattcattg ggatgggcct ctcccatgga ttcgcccaat	240
tcgtcaaagt ctccaacttt cctaattgtga aataacgcag agaagcacta atagctgatt	300
ctcgtctgtt cccaatttgt agaaaccggt catctgcata aggcaatata attgaccagc	360
ttggacagcc aggggtgtata tgagaagcta atccggcttt cgtatccatg aaagcatatt	420
tactcggatt ccaatactgn gatacgcata cgcgtcgttg ccacacctat atccccata	480
ccggccngna gtgcatccgg actggatatt cagcgatgg	519

(2) INFORMATION FOR SEQ ID NO:935

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 473 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...473

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:935

gacggaagac cggcagtttc ggcttgcatc tgttatttac catcgtcatg cgggtgggtggg	60
tacttggtcg gcagctgcag gacattatgc catcactgtt ttgcagccgg actcgttata	120
tttccgcct tgcgggttgcg tttacttata ggcgccatct tcaagatctt tccctgctct	180
tgaatgctat cgagaaggcg attattccgt gcgcttttcc gaaatgggag gcaatgtctc	240
gcataacat tcaaccgcac gcttaatcgt atcaaggaga tcctcaagcc gttccgtgat	300
gaggctatag ccggcgagca gtttctcgta catgtattgg aacgattcct gtcggcatca	360
tgatggttgc tccggaagga tatgtctatt ctccaatata gtgctgttgc gcctcctcgg	420
gttaccggtt atcacacacc tcgatcagct aaacgtgtgt cgccggacat gcc	473

(2) INFORMATION FOR SEQ ID NO:936

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 376 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...376

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:936

```

ggcgatgagt tcgacttctc cgtattggca ctttatgatg aaaaacgcta tcagttggga      60
ggagggcgtct ataatgtgca gaaggaaaag ttcaaactaa tgttttctat cagagtgata      120
gtgcagggcgt ctaccaacca tatatcatga aggcaagatt aaggggacagt tgcttctgcg      180
cgtgttgggc atggacgact ggatgccaaa caagagcctt accctgatgg tacgtacgac      240
tttgtgatgg ctatacgatc ctccctcaga aaggagttgt gatcctccct accgggagcc      300
gttcggaaaag acccttgccg atgccgtttg gcgatcctga ttgcnaaaaa gncgtgttcc      360
agaagccttt ttccat

```

(2) INFORMATION FOR SEQ ID NO:937

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 496 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:937

```

gaggatgatg gacgtatcag tagattcggc caaagtccta taatgtctaa aatgccttct      60
tgcgtgggtt tggtgtagta aggagcaacg gataagatgc atctacaccg gtcttggcca      120
tgggcttggga atccgattga cgaggcgctg gtgtagttgc ctccggctcc aacgatgatc      180
ggacaccgtc ctgccacgcc tctctgactg tttgcaatat cgcagagcgc tcggcatcct      240
cgatgtgggc gattcaccgc ttgtgccaa g tactacgatg tagttggcac ctccgctacc      300
tgataatccg ctaaaagtcg aagcgattcg tggctctacc cgccttttcg tcgaangggg      360
taatcagggc aacccccata cctcgcaact gtctctgtca attcgtattc tatttttagaa      420
acaaaagtaa aaataatggg acaatggant tgaagtgggc atttacaatt cggagaaaact      480
gcagaagtcg aaaaac

```

(2) INFORMATION FOR SEQ ID NO:938

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 467 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:938

tcggagagag	acgtttttcc	ttcgaaaaga	taactgccat	ccccaaaac	ttaaagggga	60
gttcttccctc	atcgtaactc	tcgtaatct	cgccgacgtc	tcttcccaat	atgtcctcca	120
ttgtgatcag	tccgcaagt	ccaccgactc	atccacaacg	atggagacat	gcaccttatt	180
ggctctgaac	tcctcgcaa	atcatctatg	cgcttgtttt	cggggacaaa	atatgcttta	240
cgaatagagg	atgccagtcg	aattcatcgc	ctttatccat	gtgtgggatt	agattttgat	300
gtaaatcacc	cctttgatat	tgtcttctga	cccctctgaa	acggaagtct	ggaataaccc	360
gacgaaacaa	cgaagtcaag	catcttacga	aaggccagct	cagatccaca	tccacaatat	420
cgatacgcg	gaaccatgga	ttcgagggt	ggcttattat	aggaatt		467

(2) INFORMATION FOR SEQ ID NO:939

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 876 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...876

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:939

attgtggcac	cctttaactt	tcggcgggtga	tgaagtgttc	acccaattng	gaacacacgg	60
atccaaat	tttcgaggaa	aatgatcgag	cgtggcataa	acctgaacct	tgaagtcttc	120
gacaagagca	tgatcgnaca	tggctctcgt	cttcaccgca	aaggttatat	ccaatccccct	180
atgcacttcg	acttcgaatg	ggtgtaa	atg	gcggtatcag	cggagaaatg	240
ttttcttcgc	gaaagtatcc	ccgcagatgc	cacatatact	gtagcagggtg	tgggcgctat	300
gagtttcccc	tcgcggcact	ggctatcatt	gatggaggac	atggcgtgta	ggtttcgaag	360
acaatgtata	tatatccaaa	ggagttttag	ctgctcta	at	ggagaattgg	420
ggttcgtatg	gccaaggaaa	tggtcgtgag	atagccactc	cggcagaagc	ccgtcggata	480
ttggggctta	caaataacaa	ctccaaaact	cacaaaatc	actcaatacg	tttcgacaag	540
caaaagaaag	gaaacaaata	cggcacacac	cgtgttttag	cccctcaggc	gttctacccc	600
agcccgcgtga	aaaagtggac	aacaacatgg	atgaaattac	gacaatgaga	ttcttatcga	660
tgттаagact	ttgaatatag	actctgaagt	ttcacgcaga	tccatgaaca	agcccgggtg	720
agataaggct	aaaatgccga	aatcatgctt	ggcattgtag	ccaaacaagg	aaagcatcgt	780
aacctgttac	aggctcaggc	gggatgcttc	tcggcgtagt	tgaaaagatc	ggcatgctct	840
caagacaaaa	tcgacttgaa	agtaggcgat	aaaaatg			876

(2) INFORMATION FOR SEQ ID NO:940

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 391 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...391

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:940

tcgactctnn	aggatcccct	gataattgat	ggaaaattcc	acatttcttc	agaaatttac	60
acntatggta	actttttgat	aattatagtc	ttacaccgcg	tctttttgga	tggtcatctc	120
atttcttcta	aacctattta	ttgatacttc	tcccatttct	ccttgaacca	cgcagcaatc	180
ggaactctgt	ccacgacagg	tcaagcacgg	tcttgccatc	cctttcctcc	ctgcccacct	240
tcaaggtacc	ttctcaacgg	tgaacgaacg	cttgactca	tccgaaaaca	gtttcccgta	300
acgacaagga	cttttccctg	tagcagttca	tcagtatgtc	tctggataat	ccgaccgaac	360
ggcaaatacct	ttctattctg	aggaactcgg	c			391

(2) INFORMATION FOR SEQ ID NO:941

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1062 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1062

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:941

tctcggtctac	gatcattata	ctctataccc	tctatgccac	agacggcgag	tcatatcgag	60
gaatggcccc	tatctgtacg	tatctgtctt	tcccgttgca	ccggactttt	ccattatctg	120
agacacgtga	tagtgaaagg	ctgtcatgca	atccgaccga	tatgctctat	caggaccacg	180
ggctccagct	ttcgggtgtg	tgtggatcat	tctttattcg	ataagccctt	atgtcgcata	240
ggccctagcc	atattcgatt	tcgacggtag	gctgaccgga	tgcgattctt	tgctcccttt	300
ctgcggcaag	cccagctcgg	ttattctctt	ttggctcaga	ctgctttcta	tctggccatg	360
tggatgtgct	acaaaacttc	gctgggtccg	gcgaccggac	gaaagcagcc	atcctttcca	420
cagtcttgaa	aggaaaaagg	gggtggaatg	ccgggcaatg	ggacagcgat	tctgtgcctgc	480

tatcgaaagc	ttcttcgtcc	cgaagccctt	cgctgtttgg	aatggcatcg	cagcgaaggc	540
atcggttggt	gctactgaca	gcctcgcttc	tgccttgtgt	ggagccatgg	ctgaaaagac	600
ggggtttcat	accgtcattg	ctacccttcc	ggagataaat	ccggcattct	gacgggtcgg	660
ttcgaaggca	ataactgcaa	gggaaagaga	aaatccacag	gttggatcga	gccttgccgc	720
attggcgaga	ttcgactcct	atggctatgg	cgatagcccc	tccgaccgcc	ccttgcttag	780
cctcgcacac	attcctacta	tagaagattc	cctgctctat	agcctgccgc	cgctccgtat	840
cgtttgagga	ttgtcgattc	atcgggtgtcc	cgatgggtac	ccttttccta	cccgaccata	900
aaccgccatc	agagcagaaa	aaagctctct	ttggatttcc	acataaacga	ctgcaatgca	960
acggtttgtg	atttttcagt	ttacacataa	attttcccg	cctggaaaaa	atattttcca	1020
ggtcgggaaa	catcttttcc	acgggtggaa	aatattcttt	tc		1062

(2) INFORMATION FOR SEQ ID NO:942

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 498 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...498

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:942

gccaaattca	gcttggccat	gaataccgcc	aagctgacag	aggtggagtc	tctctttata	60
acacctttga	caaaggcacc	ttggtccat	tcgaccccc	gaaacgaatc	cagacttagc	120
attcaaaaaa	agattttgtg	accgagcggc	cggagctgat	tttgataatc	agaaaggggt	180
caaacctgtc	ggtcctagaa	tttcttttat	ggtttcgagc	gtaaaaatc	agttattgct	240
gcggggaaca	aatctcttgc	ctgatcataa	aaggcaaata	tcaaggtagt	aatgcttttc	300
ttactacaag	atagactttg	tccatcagga	cgacaagacc	taggttacga	catcatacgc	360
aatcaacttct	ataaggtgac	gatcaatgga	tgatttaaag	ccggatttcc	cacaatcgag	420
cggtcttttc	aggtgctgct	ggaacaacat	agctctctcc	gaggagctgc	aaatgtaccc	480
cgtctttctc	gacgaaa					498

(2) INFORMATION FOR SEQ ID NO:943

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 538 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:943

tgcgcttgct	gcctgtcggt	tttagcggtga	tggcacacat	accgtagcga	caaacttctc	60
gatcaacttg	ctgctatcca	tccccttata	accgactgga	agtagaatcc	gtcagccagt	120
ggttcaattt	gccgtcctta	tcatagagat	attgaagccg	ttgtcaagga	acattttctt	180
catgatccga	gccttcggcc	atattcgatt	acagagtcgc	ggaagttata	ttctccatca	240
ttgcagcttt	gagcatggca	gccatacccc	attgtgcaga	gtgagtggct	cccagagacag	300
agcatacaga	gccgatgatg	acaatgcctc	gccgaaacgc	agagcccga	tgactcttcc	360
aagtcgggat	actcacgtct	cgtagagctt	gccgatatca	tgagtactcc	gatgcgctga	420
ccggcatagc	tgaatgcctt	gagctggaga	gagncaggga	tataatggtc	cgtggtagtt	480
ggctacggaa	ggttgataga	gcggctcacc	cggatgggna	ataggtcctt	acggaaaa	538

(2) INFORMATION FOR SEQ ID NO:944

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 661 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...661

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:944

ccgtcttata	cttgctgtcg	ttttcggtct	tttcggcctt	atattagagt	gtttgcagac	60
ggttacgtgg	cacatgctcc	tttgacttcg	gactggattc	tattccttct	tggtatgatac	120
tctgtgccac	gatectccgt	atttatntag	tagccgtccc	ggttatggcc	atcgttttca	180
gacatcaagg	gcagggagaa	acgggattat	tcctgcaggt	ctcaaattggc	tgggcttgac	240
catttgcttg	ctgccgctgt	cctattggcc	gtagtcttca	tattgataac	ccgtaactgg	300
gtttgaattt	cttccctccat	cgccattcag	tatgatgtca	gaatgcctaa	aaaacattta	360
ggttcctttt	aggacaatcc	atagtaaagg	ttttgcgttt	ttgttcatat	cttcgtttta	420
gaatcttgcc	ttttgaaaaa	gataacatca	gctattaata	gtatgagcga	taattgtcat	480
ttgactgaga	atcatttcga	agtgttgtcc	tcccgaagga	ttccgtcctg	actttatttt	540
ccgaatttgt	ctccgaaact	ggtattggat	actcctttct	attgtccttt	cgccggatgg	600
gggtggtgta	agtataagag	ggccggcatg	gctcccacac	ctattttacg	accgtaatgg	660
c						661

(2) INFORMATION FOR SEQ ID NO:945

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 744 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...744

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:945

```

ggagaattaa tgtgtttttg ggctactttg ttagtcgggt tagcaagant gnnnatTTTT 60
gccgcatcat tagagtngnt tgccttagac aatcaaacia aagacaacca catttgcta 120
actatttaaa atgggcgaga ttatcagcat agcggagttg tcagccgagt ggaagccgac 180
aagataacgg tatgtggcag cagaaaagtg catgcgccgg ntgtcatgcc gccggctatt 240
gctccctaca gactgcaaag atcgatatat caccgtaatg ggaccgcac ctgaatccgc 300
gaaggtgac gccgttttgc ggaaggtcat agtgccatgg gactcttgct gtcactctct 360
ctttcattgt ccttttgatt ttgttgcgtc tttgcttgct ctcaccatca gtattctgag 420
gttgagcag ggcattgagta ccttatttct ttgggagctt tgggagtata ctacctgatt 480
ctccggttat caacggcaaa ctgagccgac gtttggtatt tactattcga aaaaataata 540
gtaacaaaca aatatgatac ttactactgt gattgttttg gccgcaatgg tgccatcggt 600
gcaactggtt tgtttttggc cgcaaagaag ttcgaggcaa ggaagacca cgcacggac 660
tggttgacga ggtactccct caagccactg tgggggatgt ggcttccccg gatgctccgg 720
ttttgccaat gcttgtcaa agcc 744

```

(2) INFORMATION FOR SEQ ID NO:946

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 671 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:946

```

tacgcagttg gttttcaccc gtgattcggc acctgccgaa ctatgcgacg cgccgaagac 60
ttgggacgtg agtgggtgat ccgtgccacg ggcaccgtat ggagcgctcc agcaaaaatc 120
cgaatatccc caccggcgat atagagaagc agtcggagaa atggatgtgc tgaaccgctc 180
cgaagtgcog cctttcccat cgaagacgag accgacggag gcgatgacct ccgcatgaaa 240
tatcgtacct cgacctgcgc cgccactgcg tgcgctccaa tatggaactg cgccccggat 300
ggctctggag gtgaggaagt atctcgacgg cgagggattc ctcaagtaga gacccccatg 360
ctgatcaagt ccacgccgga gggtgccgc gatttgctgt accctctcgg atgaatcccc 420
gccagttcta cgctctcccc cgtcgcctca gacctcaag cagctactga tggttaagcg 480

```

```

cttcgatcgc atttccagat cgtgaagtgc ttccgcgacg aagaccnccg cgcgcaccgc      540
agcctgagtt tacgcagatc gactggcaan atgagctttc gtggagcaga agatgtgctg      600
tccaccttcg aaggtatggc caagcacctc ttccgtacat ccgtcacgtg gagatttcgg      660
aagccttccc c                                                    671

```

(2) INFORMATION FOR SEQ ID NO:947

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 985 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...985

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:947

```

ttccgccggt cctcctgatg gggaacagac gttatcgcac catcgannng natcgctctc      60
gataagcacc acatctacaa tcagcccgac accaagcctc tgcgatggta aagcgtcgca      120
acggcaagga acagagcatg gactattttg cgctactcca tataggccat ggatgcgcca      180
ctcatcaatg attctatggc tgagaactcg ggctgtgccc actgcccact cggatcagaa      240
gaaacacact tacggacgac gctttgggtg cactgtatga agcggactat caatcgagat      300
cattgtaccc gagggagagc tgctgaaaaa acgcgaagag acttctccgc tcacttagcc      360
tatcaggtag ggaaatatgt ggtcttgccct cattcgacgg caatccggcc gagttggcac      420
gtatcgacag caaactgaaa gaatcggaaa cgatagcgat atcattttcg aaaagctctc      480
catggtaggc atgcttcgcc gaaagggtgg gtagaatcca acgcgaagct ctccaaggaa      540
ggcgcgattc atttgcaagc tatctcgtaa acaagtaccc catcctaaaa gtcgattcga      600
atacgattgg aaagggcagg attgggcagg tctgcgtcgg ctgtaaccaa gagcgggctc      660
tcgcaaaagg atgccatact ggagatatcg accaaaagcc ggtcgggtgag cgtacagccg      720
cactgcgagc tatcgtggcg ggtctctcta tgccaacatt gctcttgggg actattaccc      780
cccgttcgcc gaagcgagct tacattccat atcgtgggtca aaggatttga gttgacaaag      840
cacgtgaaat tatcaagaca caccctctc gtctgagttt ggagagggtt acgccgtagc      900
gcagagctat ccggaaggga gccacgaacg cacgaaacgt ggacgatagc agagaaaact      960
ttcccgaagc cgatagagcc acagc                                                    985

```

(2) INFORMATION FOR SEQ ID NO:948

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 855 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...855

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:948

tcgtgcggat	tgaggcacac	tttctttttt	atgttataag	cataaaggtc	gcctgactct	60
tttacgaaag	attttgccag	taacctcttc	ttaacgtcgt	tcgacgtaag	aaaacaccaa	120
tgaatttggt	ttttgattag	ggttaaagcc	caaagaacgt	gggcattatg	cttgaaaaag	180
tagcgaatta	tttgacttta	gcagttgata	atcaataaga	tacgaacgaa	caaaacgcta	240
ctttagaaga	caaatatagt	tgatgttttt	tgcatcatag	atgatttctc	caagtttttg	300
atgaagcaat	caagaaaaag	accctcgaag	aggcagacaa	aaacgcagga	atagaaagtt	360
taagatgtcg	gacagtggag	tcatgaccat	ccgatcctgt	ttcatctgtc	aagataccga	420
gatttgaaag	ctttttatct	taatacatca	cctattcttg	tcgatccgag	ttcccacatc	480
ttgtctotta	aatcgctttg	tggagctgca	aagcagggtg	ggtttcaagc	tgatagcatt	540
ctcaatatgt	gttgtttggg	tcaatgtaca	ggcatctctt	tcatcgatcc	accccactga	600
aggcttgta	tatcaaacga	gctcatgggc	ataggacatg	aggggatggg	ctcaaaaagg	660
caaaagcacc	atggggttgg	gttttaggat	tcaaactgca	tattggtatc	aacgaccagg	720
ggtgaaatca	tcaacatcaa	atcaccaccc	ggcaattgtg	atgaccagag	aaccctctga	780
aagacggaac	cattcaccaa	gaatcttttt	ggcaacttca	ttggccgatt	gagcttccat	840
ttcccaaaac	ctttt					855

(2) INFORMATION FOR SEQ ID NO:949

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 972 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...972

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:949

cgacggnatg	gtgggtctcca	tcaaggcgga	catattcttc	cgtaatgctc	cttcgggggt	60
gtcatcctga	ggatgggtgca	agagcttgat	ggtaccggga	agacatcgtg	ccccgttttc	120
ttccacatcc	atgtagacta	ccggcaggag	aacttacggc	cgagcttctc	cgtcccattg	180
aagaaagccg	tttctcgccg	aagaaggtag	tccagtatga	gccggcatag	gccggacttt	240
ggtcgcgatg	aagatgacta	gtggagtctc	tgtcgggaata	ggattgcgaa	cgagcggagc	300
agttcacgtg	gcacgtcgtg	cttgngctat	accacgcgaa	ccgatcgctc	ccgtatgcga	360
tgcatgagcc	ggtcggaaga	agtacttttc	aagggcgaaa	gatctgatag	atctgtaggc	420
ccaaatcttt	gatgatggcc	tactgccgga	aaagtactcc	cagttgccga	aatgccccat	480
catcaggaga	tggcagggtg	cccttcgggt	cgtaagcgga	tcaggacatc	gagattttca	540
atgagatgtg	gcggcggagt	tgcgcctgtg	aataagtcag	aagcttgagg	aactcaagat	600
ttgatacgtg	aaattatagt	aaaatcgacg	ttcgatcggc	gtatttcttg	taaagatttc	660
tcggggaaac	agcagagtcag	attgtccgta	ccacctttct	ccgatagcga	acgacggtat	720
gcagcagccc	tgccagatac	gactctgcaa	ccgcaccatc	catagcggtg	gcactgcctg	780

cataacgtca ggcctaacag caaataatag gaaagggaaa gtgtcgcttt catggaatat	840
ggtatcggct gtctgcacat attctccgct tggatcgggt ttccaatac gatctcttcc	900
actttaccaa cccgagtctg cggcataggg accgctcgcg gatgtagtct ncgtaaaacc	960
ctgcatcaga cc	972

(2) INFORMATION FOR SEQ ID NO:950

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:950

tacgatatct gcttttttcg gtttggttt cccgttcttc cttgctgcta ggtcgggatg	60
gttatatatt gggtagtcg aggcaagatt gtttggttat aggaaatgcc ctttttggtg	120
cttttcacat ggggcacccat cgacactata taccgctgca tcgaaagata aaagagtcct	180
cgattccgca gtcgcatca aggtgatgac ctataacgtc aagggaattcg attttcgtgc	240
tcacattcag agaatcccaa tcctattctc aaatatatca aaggaagtgg agccatatcg	300
tatgcttgca agaggcagta ctgagtcgga aaagcaactc tcgtatgtgg ggctacgtac	360
tttcaagaaa tatcttcccg aatatcgcta caggaactgg tcgcatgctc gagaagatag	420
aaaaggcagc ggccttatgc tctgtccaaa tatnccatct cggatgtgca ccgcattcca	480
taccgagtcc cattcatggc ttcaca	506

(2) INFORMATION FOR SEQ ID NO:951

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 373 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...373

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:951

ctgtggtcgt	agagcgaaaa	ctgaatgtgg	gtaaaaacgc	aggtaaagta	tgcagatagc	60
aagaccgacg	gggagacatc	gtgtagactt	tcgctccttt	gcgaacgtgt	atccaagtcc	120
aaccacattc	aaccgtcaag	aagtcgagct	gtattgaact	atgctacaga	gattgccaaa	180
gacattgtat	cgaacgcgac	atcgtggagt	ttggagacct	tggcacacta	atgccttctt	240
tcaaagtaag	gcggtagaac	agggggtaaa	gttcaatgct	aatgttcaca	tcgaaagcct	300
gttgtcttgt	tccaaccttc	caaaaagtac	tttactctca	ccgtgtaagc	tatgaacaga	360
caactgccag	gcc					373

(2) INFORMATION FOR SEQ ID NO:952

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 412 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:952

tttgggaacc	gatgctccga	acttatctcc	ctaccatcta	ggagtttccg	tacacagcct	60
tottgttgat	cctaattgctc	aagtccctgca	atacacctct	ccatctgtac	ctagtgcact	120
gagcagggct	tcnntgacc	accgntatt	cgtgattccc	tgettgtctt	tottcccgaa	180
ggataagcat	ccttttatcc	aaaagtccaa	gaaagcattc	tcggtaagcg	catgataata	240
accgaactgg	ccatgtgtcg	gtatttctgg	aatagtgaat	ggctcacctt	gcgttgggtg	300
tgaatgtctt	ctaccgaata	gaatacaaat	acggggcaatg	gccgtacctc	ccctcatctg	360
ttgcataccc	ctctagtagc	ccttttggtg	tatcctgatg	ggctcttggt	gt	412

(2) INFORMATION FOR SEQ ID NO:953

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 378 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...378

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:953

aactaagaaa	aaaatggaag	gttcgcgcga	tagtacttcg	aagaaacaga	aaacggggag	60
catgggcatt	cggagagaaa	aaatggccaa	ctcattgcga	tcctcatgct	tgcacgcctc	120
ctatggttgg	caatagaaga	tttggccctt	cgggacaatg	gggaatatct	gccattaccg	180
ggctggcttt	ttgggcatcc	tacggaagcg	cagactactg	ccaagaaaga	tcgatcagcg	240
gttgcacac	ttctctttcc	ccttcgggta	cgaatccgcg	cattcgagtt	gagatgatgc	300
gtggcagagc	gactccacct	gcagacccat	acatacatat	atgcaaaaact	gcggagatgg	360
atatacgggc	caattttct					378

(2) INFORMATION FOR SEQ ID NO:954

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 348 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...348

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:954

ttcccagttt	gccactgcag	aacgcagcag	cttntctaca	cgtgccgaac	ttctttgtta	60
gagaacttca	gcacacccaa	ggcgcgattc	acttccatcc	acgaatcata	tcggggccacc	120
aatctcatct	tgccggggaga	agtaggccgt	tacgaagctt	ggcaaagtac	atctgcttga	180
gggcttcctt	tcttgctcgg	ctgaattatg	ttttcttgca	cccattgttc	ttaatacttt	240
taattttcag	attcctgaag	tgtttgattt	caaccgaatt	acttcttctt	gttacggcat	300
gaccacggaa	agtaccgtgt	aggagagaac	tcccctaact	tatcccac		348

(2) INFORMATION FOR SEQ ID NO:955

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 440 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...440

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:955

ccgtttttagc	tctttttttcc	gaaaatataa	gtngctataa	atgagagcat	aaaattaagc	60
acgccattca	tgtaattggg	gtgcagatac	gatacgaagg	cttggaataa	aaaaaacat	120
tcgggggacc	agccccaac	aggttttcat	ttttcattct	ttcgctttca	gcttcagtgc	180
caatcgaccg	gctccgataa	acagctgccc	acaggaacag	tgtcgatatg	gatgcaatcc	240
gtaattgtga	ataaccggca	agccttgccg	atggagtggtg	cacagataga	tattcncatg	300
tgccgggatg	aggaatccgg	tgtaaaattt	atatttttgc	gcgatattaa	gaactaagca	360
agtgttacat	ggataaagtg	agctatgctc	tggggattgg	agcattcggg	taaataattt	420
caaggctctc	gggcatacna					440

(2) INFORMATION FOR SEQ ID NO:956

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:956

gcctccgaag	tncaagggtgc	ctaccggcgg	ttctaccctg	atcaagtacg	gctatgggat	60
cattccgaag	ctatgtatgt	gaataagttc	tatatcatat	atatgactat	tccaaagacg	120
cttggggagca	gggggtattta	ttggccatga	gttcaactca	cctcttcact	acgtggaaga	180
atacactttc	gatttgctca	atggaagggg	aaagacatca	agggtggcttt	cgtgaaaaac	240
ggtactatca	aatggctatg	gatgacatca	gaatcctgaa	ctaccaaagc	ctgcagangt	300
anaacaagaa	ngtattcgga	tttatcccaa	tccgactacg	gatggctgat	gctggacaat	360
gtgggtgatg	ttaagcgcca	ttcgatttat	antatgtttg	gcangccgct	tgtggtggtc	420
cgcaatgccg	g					431

(2) INFORMATION FOR SEQ ID NO:957

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 311 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...311

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:957

```

nctcgccggc gngatccgat cgtgtcggta tcgcgccgaa gaagtgggtca tgcggccttc      60
gacctccact tggggcaggg gggcaatacg cacgaagagc ccagacggac tcctctgcca      120
tagaaaaaag ctgacgaata gtggtgagcg gattgtgcac cgcttcatag agccggtcgg      180
caaaggaatc cgtatcaatg ccacggcgct catactgcat acgcggaagc aatttccttc      240
cgctaaatcg gcacgcaaaag caaagctctt gcctcccgct ggaagcctgc cattctgcag      300
ctctctntca a                                     311

```

(2) INFORMATION FOR SEQ ID NO:958

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 639 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...639

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:958

```

ttcaaggtgt tggaggatgg tgcagccaca ctgtcgaaag aggaatccga cgcttggcac      60
agcgactgat gaagtttatc caaaacttgc aagctgcttg atacgtatcg agaataagac      120
ttacggcggtt tgccgcgaaa cgggcaactt attcccaaag aacgacttcg cgccgtacct      180
catgctacgc tgagcaagag gccaaaatga acgagaagaa atagtagatg gcttcttttc      240
tctccgtctg cctcagggaa aagtagtcgc agctctcatt gtcttgcttc tgggtgtagat      300
caggtgatca agatatgggt gaagacgact atggtactgg ggcgtcgcac gttgtcgccc      360
cttggtttca gatccatttc gtggaaaatc ccggatggct ttcggtatag aattagggag      420
caaactcttc ttgagtctct tcgcatcggt gccatgggct tttgtatcta tttattggcc      480
aaattggtac aaagcgagag catacactcg cctttctctc ttgtttgtct ctgatcatc      540
cggcggtatc gggaatatta tcgattctat tttctatggg gtcattcttc cggcagtcac      600
ggacagattg cacaactatt tccttcagga ggtggcggg                                     639

```

(2) INFORMATION FOR SEQ ID NO:959

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 476 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...476

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:959

gctcattttt	acctttcttc	gtttgaaatg	aaaacgactc	cgtttgcaga	cgagctccat	60
aaatagatgt	tgcagaagca	tctttcaaaa	cggacataat	tcaaaatcat	tcggattcat	120
cgtagccaca	acatccaaag	aagtttgata	ccatccacga	tatacaatgg	tgcagagctt	180
gcccccaacg	accctgacca	tggatctcca	cagaagcgac	ggcagtaggg	tcaccggatg	240
tagtctaacc	tgcataccgg	ctacctgacc	ttggagggca	tccatgatat	tggcacgggc	300
ttttccgcga	gcttttcgct	ggacactttg	gccacagaac	cggaacagtg	ctgagtttct	360
gtcccgtacc	gtaacccaat	acaactacct	gcccagaacc	ttagagtccg	gatccagtac	420
gatcttccat	ccacatttag	caatggcgaa	ctcctttggt	aatcataccc	gggaaa	476

(2) INFORMATION FOR SEQ ID NO:960

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 934 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...934

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:960

ttgggaaaac	tcaatttgca	aggggaaaga	aaccccgccg	gnagcctaac	tttttggtatg	60
gaggcttact	aaagcgaaaa	acgctctaaa	gcgacctatt	actggaatta	cttgctgttt	120
ttatcccctac	tctgaggttt	atcggacgca	atgaatctag	acatatacct	tcggtgttga	180
taagtttttg	ttcgtactcc	aagattatth	ctctcgttta	tgcgttattg	gctaactttg	240
gagcgggtat	aatacaatta	ctacaagtga	agatttagaa	gagaccaacc	agcagcattg	300
tcctgataaaa	gagagtgttt	atcacatacc	ggtgatgctc	ggcagtgttt	ggaaggattg	360
cgtattgatc	ctgacgggtg	ctatgtcgat	gtacgttcgg	cggcggcgga	cattcccggg	420
ctatcgtgga	aaaattaagc	tcaaaggacg	gctgtacggg	ttcgaccaag	atgccgatgc	480
ttgtcgaaac	ttctccaaga	tgagcgcttc	acctttgtaa	cttccaactt	ccgctacctg	540
ccaacttcat	ggattattac	ggagaggatg	gagtcgacgg	catattggag	accttggtgt	600
atcgtcacat	catttcgacg	aagaggagcg	cggattcgtt	tccgttcgga	aagtcctctt	660
ttggacatga	gaatgaacgc	tcgtgcggcc	gcaatgcagc	tgccatcttg	aacgaatacg	720
atgcctcgtc	cctgtcggcc	tcttctatca	ctatggggaa	ctgaaacagg	cacgtcgttt	780
tgtcatcca	ttgtccacta	cagggagtct	ctttccggcg	gactgcaaac	tgtgggcaac	840
ttctcgaagc	cgtgcgcggg	ctcatctctc	cgcgagaaga	aagaacagtt	ggcctgcacg	900
tttcaagcct	tgcgccatcg	aggtaaacca	tagt			934

(2) INFORMATION FOR SEQ ID NO:961

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 378 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...378

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:961

```

ccgaacatct catcacacnc aataggggaag acctcagtgg catagccatg ccgtagcgat      60
ggagggcatt cgcccgatac tcatcgaagc gcangettgg tcagctcggc catttatgcc      120
aatccgcagc gtccggccac gggcttcata ttccggcgat gaacatgctc ttagccgtac      180
tgagaaaacg tgccggttca agctcataca gaangatgtg tttctgaaca ttgccggagg      240
tatcaaatag ccgatccggc tacggatctg gccgttatct cggcagtgct ggcgccagtc      300
tgacatcgt tatcccgccg gccgtatgca tgacgggcga agtggactct ccggananat      360
acgtcccgtg agccgcat

```

(2) INFORMATION FOR SEQ ID NO:962

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 381 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...381

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:962

```

gattagtttt tgtttcattc gaatgaggta gtttttgtat ttggagacaa tagttacgga      60
gccaaagcggg gaacagacca ggaagcatcg ggccggagtc gtacaggaag cgatcgtgca      120
agcggctttc gcgcctttgc caaaatttat tcgtaccggc ttcacggcaa agccacccca      180
agtgtcagga cgtggccagt ccgaccggca tatttgagcg actccttcac gaattcctgt      240
acgataaaga acgccccggg ataggacgac tctgtggcga aatgcgcgcc cctaccgact      300

```

tttgtaacgga cgtgttagca aaataagcat ccgctaagct ccgctcctaa aatacgttac 360
atccccctcc cacatgttat c 381

(2) INFORMATION FOR SEQ ID NO:963

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 470 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...470

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:963

ggccactgtc	gtgaaatctg	ttcctccggt	cgggtgctat	gggctttatt	totccattgt	60
cgggtgtgatc	atctttacgg	gccttaccgc	tttcgatgga	acaaaatcaa	gcagatgctg	120
gtcctaaacgc	aaggattcga	agagggaatg	tagttcgcaa	agtagccctg	atgggagcct	180
tgacgctcta	tctggattca	tcaatctttt	cctctatctg	cttcgcttct	tcggccgaag	240
ggactaatcc	ctcccattga	aaagacaaag	acaataataa	aaatccctgc	caactggatc	300
gttggcaggg	atctttcatt	gaaacaccgt	tagtcnatag	atctcntaca	actacattga	360
cgatccctccc	ggggactaca	atgacttttt	tcgactottg	ccttccancc	aacgggctgc	420
ttccgggaac	aataaggctg	ctgctctaca	tcttctttgc	tcatatcggg		470

(2) INFORMATION FOR SEQ ID NO:964

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:964

tgggttaagc	gtacatatat	acaaaggtag	cacagttttt	aattaacttg	cgtaatagcg	60
tctgtaaaac	agattggcta	aagatgttat	ttgagtcttc	ttttagatc	gaaaaaagat	120

```

atgaaacaga cttttcgctt tatcaaaca ttgaacggat tactcacctg aagccgaatg 180
ctacgatgat gttgttttgg cttcggtggt ggcagtcac atggctaata gttcgttgag 240
tactactatc atgaaatttt agagtacct atcaatctta cgatcggagg tcataggtct 300
tttctcatca tggagagacc atgaccttgc tccagtttgt gaagatgtgc tgatggtcac 360
tt

```

(2) INFORMATION FOR SEQ ID NO:965

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 946 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...946

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:965

```

acaaaacaaa gacgaagcag ctatatgtct aacgaacgct ataacctgcc ggagtgtcgg 60
cctcgaaaga ggatgtgcat gccgccatca agaattgtgac aagggtatatt tccctcaggc 120
attctgcaag attattccgg atattctggg ggcgatcctg actattgcaa tatcatgcat 180
gccgacgggg cgggcacaaa agctcgcttg catacgttta ctggcgcgag acgggagacc 240
tctctatagg aaaggaattg cacaggatgc gctgatcatg aatatagacg atctctgtgc 300
gtcggtgccg tggataatat acttgtgtcc tcgaccatcg gccgaacaaa cggtgatac 360
cgggcgaagt ggtatcggct attatcaacg gccggaagaa ctctggccg atctgcgtcg 420
catgggtgtg aatgcctatg cacgggggggt gaaacggctg atgtgggoga tctcgtcagg 480
actatcatcg ggacagtacg gtgacttgcc ggatgaagcg atcggatgtg atagacaatc 540
ccgtatcaag gccggcgacg ttatcgtcgg gttagcctca ttcggacagc tttctaccga 600
gggaacagtc caaccggcgg tatggggagc aacggacgac ctctgctcgc cacgacgttt 660
ttgcccacta tctggcagag aagtatcgga gagtttcgat cctcgggtgc cggacgattt 720
ggtctatagc ggcagatgaa gctgaccgat gccatagccg gattggggct ggacgcaggc 780
aagccgtgct ctgcccaca cgtacctacg cccctgtggt caaggccata ctgacgaaat 840
gagtcgtcgc attcatggca tggtaactg cttcggcggt gccagaccaa ggtgatgcac 900
ttcgtcaaga ataaagcgcg tggtaagga cacttcttcc gacacc 946

```

(2) INFORMATION FOR SEQ ID NO:966

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 992 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:966

```

gattatgatg aagagacttg ggggaaatgg tgtgcacagg cccgatgccgc acactggcag      60
gagctttgtc tttcttcttc catgcagcga acaaggggtc gaggtctttt acgtcaccaa      120
ccgcagagac aatntgcgcg aagcaacntt cagaaccttc agcgttacgg attccccctt      180
gccgatgaag aacattgctt acgacccatg ggccatccga caaagaacct cgtcgggtca      240
aaataaagaa cagtatgaaa tagtattgct cataggagac aacttggggc acttcaccac      300
ttcttcaata cgaaagaaga gtccggacgc aaacaggctc tggcctgaca gccggggagt      360
ttggccggca cttcatcatg ctgcccaatc ccactacgga tcttgggaac cggcatggta      420
cggcggaag tatccgccac tcccgaaaga gacaaagcac ttaaacaact gcactcacag      480
aacagcagat gctccttaag caaacacatc gaatagacag actcacacta tggacaacaa      540
cgactaagca aaatagaaaag actgctccag aaagaactca gcgagatata ctgcgggatg      600
cgaaatccct gccggggcgt atagtcttcg taacgaagta cgtgtaagtc ccgacctcag      660
catcgcacgt atacacctga gtatatccca tccgagaaga gcagcgagat tcttgagagc      720
atcaaacaca atacaagacg atccgttatg acctcgggca gcaagtctgt acccaactgc      780
gcaaataccg gatttgacat tctacataga tgactctctg gattatctgg agatatagac      840
cgtttgcctc atcaataaga aacggctcgt ctctatcaag acctgtgaac ttcccccttt      900
tcatagcccg ccgttacttg ttctcccgca aagattcagt gcgggtcaatg tggtttcgct      960
cgtttcagcg atagctgtct cgtggtctct tc

```

(2) INFORMATION FOR SEQ ID NO:967

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 441 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...441

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:967

```

gcggccggac ctctgtgtag ttcttacaat ataaacgnct taagagaaaa atcagaatga      60
tgaacaaaac gaaatccaat cgtgcggccg gagccaggat cttgtcgcac tcccgttggc      120
tgcccttatg cttctgagcg gtaaagtctg tgggcccggca atgccgtatc cgaagtccgg      180
gaagtagtag caaccgtgcg agcgatcccc ccccttctgc tgatgctcct gacatctccc      240
tgcagaggac gaggatcctg tgtgttccga gctagatact ccaccatctt tcccggggga      300
atgtccgaac tgatgcactt tctgagcaag aatttaaagt atcggaacaa tctgcaaaga      360
acagcatcca agtcgagttg tggctctcgt ttttgtcgaa aaagacggca gactgactaa      420
catacaagtg gaaaaaagcg t

```

(2) INFORMATION FOR SEQ ID NO:968

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 420 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:968

```

gctacagaca ccgtgtcagc aagctgatgt ttctcggcag cacctgtatt acccgcgcca      60
tgcccgctcag ccgatgcgtg aggaagaatt gctgacagtc cgctggaata taccaacgag      120
ccatacgcca tagccaaaat cgcaggatga agatgtgcga gagcttcaac ctccaatacg      180
gcaccaatta tatagcgtga tgccgaccaa cctgtacggg cccaacgaca atttcgattt      240
ggagcaagcc atgtgcttcc ggccatgacg aggaagattt acttggcoga tcgctgcttc      300
gccacgatga ggaaagccgt tccgcacgga tttgtccata cgtctgtoga aagcatcgac      360
ngatcttctt ctttcaatga tattctctca ttctgaagcg gtacngcatc accgccgaaa
420

```

(2) INFORMATION FOR SEQ ID NO:969

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 388 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...388

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:969

```

taatgccctt gtagacaaca gttcgcccaa atatcccgcc acggtgacat ggccggttgt      60
gccgacggtg gacaggcagc cgaacagttc gatgtcaatt gctacacagg cacatgccca      120
atgcagccac ccatagcgaa gcacaggttt cgacacgcag ctcaatagca ggctcaattt      180
ccgcaacttc taccaggcga atgcaactat gtagctcgct cagtggctga agccatcgcc      240
gccagccggg caatacgccg atgaatccat tctttatata tggagcttcc ggtggggcaa      300
gacgcacttg tgccatgcct tgggccttcg tgtcagagag atgacccccg gttgaaagtt      360
actatacgtt atcgagtcac ttgttcga
388

```

(2) INFORMATION FOR SEQ ID NO:970

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 416 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...416

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:970

```

ggacttcgaa cgagattatg accgcatggt cttttcttca ccttttcgcg actgcaaaac      60
aaggcacagg tattccccct tgcaggcaat atattcgtea caatcgctctt acgcacagtc      120
tcgaagttag ctgtgtggga cgctcgccgg caataatata acacgcggac tgaaagcgcg      180
gtatggcgaa ttgccaggga gtcggggggcc atcagtgccg tcgtgtcggc tgctgtctg      240
gtcagacat  gggcaatcct cctttcggtc acagcggcga gcgtgccatt tcggttattt      300
ccgcgaagga aagggtaggg tatgggagga cgcagtcgcg aagaaggang tcgctgggaa      360
gacttcctgc acttcgaagg caatgcaaac gcttcogtct gctgacgcat ccagtt         416

```

(2) INFORMATION FOR SEQ ID NO:971

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1553 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1553

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:971

```

atcacgggtt gaaaaccaac tgcgtagtac cgtaacgggtg gcgcagatca caaaggatcat      60
gccgcccatt cggcgcacgc gctgtaccca accgcagagt aacggtttgt tgcagatgag      120
aaaggcgcaa ctgcgccag gtatttgtct gtacataatg ataaggggtt-cttctattta      180
tgatcgattt tgtggacaaa agtacgaaac aaagcggact tttcctccta aaacactcga      240
tgctggtggg ggtaataccc taaaagcaaa ggccttgac atttgcggaa agtctatgaa      300

```

gaaaacaggt	ctttgacccg	attgggactt	tacggagatt	acgagtgtaa	gagactctgt	360
gatttgactg	catgcagtct	gtttccatca	tcgacggctc	tgccgtcgta	tagcagttct	420
cagacaaaa	acgcatgggg	ctggggcgag	aaaacgtggc	gcgggatttt	tttcgttttg	480
gttcgggaat	aaaaatttct	cgcgcgtaaa	cgaagtaatt	tacgcgccta	aatctcgcaa	540
atacgcgccg	caattccatc	gattgcagtg	cgtaaaattc	agtaagagga	aggtgaggag	600
cacgaactcc	ctcgtttaag	ataatgggtg	tgtgttcata	cgtacatcat	cgtacagacc	660
gctgtctatg	aaagatcgga	gtatacggca	cctccctcca	ctaacagcga	ctgtatgccg	720
cgagcgtgca	gttcgccagc	atctgctcca	cgggagggcg	ggagggatcg	atccgaacga	780
aagaacagcg	gagggatagc	cggaggggtg	ttctttttcg	gtaaagacca	gtggggcaca	840
ctgccatcga	agaggggtgag	gtggcggtgg	agagccagat	gggatctgtg	accacacgta	900
gcggatttcg	gccgtaccaa	tgccgaaccg	tagagaggga	ttgtccaaaa	gagcggtagc	960
gaacccccacc	aatatggcat	gtgtatcatt	cgtctatggg	gcacaaagcg	tgtggtcaga	1020
ggtgtactcg	cctgacagga	gggtggagg	catngtcgng	cagtgcgtca	atgaatcctc	1080
gctactctct	gcccatttga	gtgtgacata	gggacgggtg	tgccgttggc	tgtgaggaaa	1140
tgccgattca	gctcctcggc	ttcctctgca	agtagtccac	ttggaccgat	acgcctgcgt	1200
cacgcaacat	cttgatgcct	cttccgaaac	ggatgggaaa	ggatcgagca	tggccaccac	1260
ttcatgaggg	atgcctcccc	aaggatcagc	tcggcacagg	gaggcgtttt	gccataatga	1320
gagaaggtc	cagactgaca	tagagggtag	tttctctgag	caaagccctg	tccgcacaga	1380
gtttatggcg	atgacttcgg	catggggcat	gccggcacag	tgtggtagcc	ctcaccgatg	1440
atacgcccat	gagccacaag	gactgctccg	caagcggtt	gggagagggtg	aacccttcgg	1500
cattctgtgc	taattcgatg	cacggcgcat	atacagagga	tcgggagtca	tac	1553

(2) INFORMATION FOR SEQ ID NO:972

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:972

aacaactaat	gtctcacaaa	ttaatttaag	aacagagatg	aaaaaactgt	tttagcgact	60
ttgggactta	tggccattgc	catgctctca	tgttcaagaa	caacaaggat	ttggagaaca	120
aaggggaggc	tactcttttg	gtaacgttgg	tagctcctat	aaagctccac	gcgaaaccta	180
tgcaagatt	gagaagcttt	tgcgcagct	tatcccgatc	aaaggataag	ctggacatac	240
acgtctctat	tatccgaaag	aaactggctc	agcagggtat	ttatatcgat	gctcggatga	300
ggctttggag	aaattggctc	gtctgggtta	taagaagatc	aatttacaga	gtcttcatgt	360
gattcccggc	cgagaatatg	atgagatgat	cgctttgttc	aataatttta	aggcagcaca	420
tagtgatatt	actgtg					436

(2) INFORMATION FOR SEQ ID NO:973

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 385 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...385
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:973

cagctcctcc	togaagattg	ataccgaggn	aatttcctca	gaagagcaga	agacatagta	60
ctgtagtata	tccgtcaact	ggcgggacat	acacagcagg	caaagacaaa	gccgatgagg	120
ctaagtgtcc	aaagccgaat	ggaatcgcg	catagactgc	cgacggatgg	gcagggcatg	180
aggctcccaa	ccaacggaac	gtgcatacag	atagacttta	taaacaaaagt	gtcctacgat	240
aagtgcacgg	cgatacccg	gataatatcg	gtgatgaaat	gcactccgat	ataatacggc	300
tatagatgac	gagtgcgacg	acgctccaga	tcgtccacgt	gttgaattta	ttccgaaaaa	360
tacngctccg	taaataatgc	cagcgc				385

(2) INFORMATION FOR SEQ ID NO:974

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 696 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...696
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:974

cggcgcannt	ntggttcgtg	tttccatgac	agcaggctat	agacattggg	cgatcggatc	60
gatgtcgggg	cgttatggct	gcatgtctta	tttctttatt	ttgtggggag	cgcaggcaaa	120
cactattcgc	ccgccatctc	cattcttcaa	taccttcatt	tgttttcagt	aaaatgaatc	180
gagcacgaat	catcgtgccg	gcatcggtec	gggaggagca	tcggatatta	ctcctgcagt	240
gctatggcta	tcggccggtc	cgacgtagtc	gtcggctata	aatactatct	cggtttatcg	300
aaccttatct	ccgtccggat	acccactgcg	tggataccgg	cataagaagg	agcggcgacg	360
tgccgaggaa	gcattcgggt	atgccctcag	cgcaagacgg	tctgcgtgat	cagctccggc	420
gatgccggca	tctacggtat	gctcctctta	tatatgaaat	gaaacgagcc	aaaggcgtgg	480
agatggacat	gaagtgcctg	ccggtatcag	tgcttttcag	aaagcggcct	cgtcgtcgtg	540
gctcccatcg	gtcacgacct	ctgcctgata	tcgctgagcg	atctgatgcc	ccttgccgca	600
tcacgaaaa	gcgcatagtg	gcagcagcct	ncgcggattc	gtcacagcta	tatacaatcc	660
taagagcgag	gcccgatact	ggcagcctat	cgnttc			696

(2) INFORMATION FOR SEQ ID NO:975

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 569 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:975

```

cgcaactctt cegtattgtt cgtataataa aggtgtacgc gagggatcgg ttccaaaacg      60
ttgaaagtcc gtatagttcg ataagtatcg cagcaggata cagccacatt caccggtccc      120
tgtccggcag cactactgctt gaccgacgtg ctacggagtc ttctctctcg atatgaatat      180
ccttatagta aggaatactc ccacaacggg aataccgcac aattcctcaa ggatcttttt      240
cccttgctga aaaggcgaag atcgccccga aacttattga tcatgatgcc tcgtcatact      300
ttcgctcttc ggcagagagc aacatgatag aaccgtagac cgagcaaaca cgcctccacg      360
gtcgatgtcg gccacaagga tcacgcatgc actgcatgga tggccatcgg catattgact      420
atatcggtat cgcgagatt cattcggata tactgccccg tccttccatt acaacggggc      480
cgaaacgaga gccaaagcgg cgaaagcggc gtacacctcc gtacgcagtt cgtccctccc      540
tctcgtcgaa agtattcgta agcatcccg                                     569

```

(2) INFORMATION FOR SEQ ID NO:976

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1498 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1498

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:976

```

ctattgacat aaaaattgcg gagctacata agaggcttcc annnngnacg gcaaacaatc      60
aactaacaat aacaaaccaa gcaacaatga acatcaaaca ttggcagacc gcgtacttgt      120
aaagccggct gcagcagaag aaaaaacgtg agcgggatca ttattccgga ttcggccaaa      180

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gagaaacctc	tcaaggtgaa	gtaatcgctg	tcgggaacgg	cacgaaagac	gaagagatgg	240
tgctcaagca	ggagacaccg	tactctacgg	caaatatgcc	ggcactgaaa	tagactggag	300
ggtgaaaaat	atatcatcat	gcgccaaaac	gatgtcttgg	caacatctaa	tgggcaaaac	360
aaaaaaatca	gaacaagtta	acactgcagg	ttgccttcaa	aaacaggaaa	ccccagtgg	420
aaaggaagag	acaataatcc	tcaaaaaaga	aaaaaaataa	ataataaata	ataaagacta	480
tgggaaaaga	atcaaattcg	atatggaatc	tcgcgacctt	ctgaagaagg	gcgtagatga	540
ctggcaaatg	ccgttaaagt	taccctcggg	ccgaaaggtc	gtaatgtttc	cttagcaaga	600
cgtacggagc	tccgcacatt	accaaggacg	gtgtgaggta	gcgaaagaga	tagaattgga	660
gtgcccgttc	gagaacatgg	gtgcccgttg	gtgaaagaag	tagcctccaa	gaccaatgac	720
gatgccggtg	acggtcgact	acggctacga	tcctcgccca	gagcattatc	ggcgtgggtc	780
tgaaaacgtt	acggcaggag	ccaatccgat	ggatttgaag	cgtgggtatcg	acaggctgta	840
aaggctgtgg	taactcacat	tgcaggatat	gctaaggaag	tggcgacgac	ttccagaaga	900
tcgagcacgt	agccaagatc	tctgccaacg	ggacgaaaac	atcggtagcc	tcattgccga	960
agccatgcgc	aaggtgaaga	agaaggcggt	atcacggtag	aagaagccaa	gggaaccgac	1020
actacggtaa	agtggtgga	ggtatgcagt	tcgaccgagg	ctacatctct	ccctacttgt	1080
aacgaacacg	gataagatgg	aggtgcaaat	ggaaaatcct	ttcatcccat	ctacgacaag	1140
aaaatatccg	tcctgaaaga	gatgtcccg	atcctcaaca	aacggttcag	acgggcaagc	1200
ccctcctcat	cattgcagaa	gacatgacag	cgaagcactc	gccaccttgg	ttgtaaaccg	1260
tctgcgcggc	agcccaagat	ctgtgcagtg	aaggctcccg	gattcggcga	tcgtcgcaag	1320
gcttgctcga	agacattgct	atcctgacgg	gcggaacggg	tatcagcgaa	gaaccggtct	1380
gaagctcgaa	aatgctacga	tggatatgct	cggtacagct	ggaaagtaac	ggttgataag	1440
gacaatacta	ctatcgtaa	cggagccgga	acaagaag	catcgcttca	cgtatcac	1498

(2) INFORMATION FOR SEQ ID NO:977

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 474 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:977

atttattccg	aagtaaggac	ggaacaagta	accgttcaag	aagaacagaa	gagtaaagcg	60
gtcggcagat	ttgtccaccg	ctactttctt	tcatgagcgg	ggaaatggcg	aaaaagaaag	120
gagcaaagaa	atccgataaa	aagcattcgt	tatttttggc	agtgagcaga	tattctttgt	180
ggaaaatccc	cctaaatcta	tgccccatat	agcaatttac	agtagctttc	tgaacttcat	240
ctccgcaacc	tggtgatttc	atcctttag	gtctcaagat	ggtggaggat	gatgtttcca	300
catagatgcc	gatggtcata	tcctatttcc	tcatagacat	gacatctccg	ccaatgtatc	360
ctgtaactct	ttggcaatat	agatggtctt	gcatttttca	aagtattgcg	acagatgaaa	420
agcgactcat	aatgcgcttt	gcggattttc	gcctttctct	tcttgaaact	ctng	474

(2) INFORMATION FOR SEQ ID NO:978

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 455 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...455

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:978

gggattggac	ttcaatcctt	cctgctggtg	gattgcttga	tagagacaag	tggtatgttgt	60
taccggttat	cgggtaacat	cccagaatgc	tcatagagag	atacgcaagt	cggtagggag	120
tggttcttct	acaactctac	cgccaattgt	caccgatatg	ggatgaagcc	aatccgttaa	180
cttgtctcat	acttgtcccg	agatatatac	catgggtact	tttgttgtaa	acggtaccga	240
tccactgtca	tttcacaatg	tactccaaca	gatctgggac	gcgttgctaa	ccacacgccc	300
gtcgtttcgg	ctctgggtga	tttgaatatg	ccaatgaata	tgcctgggtg	ttaaagatta	360
gaaatatcta	tctgaaagta	ccgaaatcct	accgctgaaa	taggntggaa	ttatagcaat	420
cacccgtaac	catagttccg	taggttacaa	ccatg			455

(2) INFORMATION FOR SEQ ID NO:979

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 456 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...456

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:979

tcgaaccttg	agtattaggc	ttggcactga	ccacatcgtc	gaattgtang	cagcaccgga	60
tgcaagcaga	ctatccaatc	ggggggtatt	ctccagagat	aaccatagct	atgcatataa	120
tcaggctcggg	ctgactcacc	cagaacggca	ctaccgtgtg	tggcgcttta	ggggagactt	180
tggttaacat	atctcttttg	tactggagtt	aatgcgatcg	aaaagggcat	tgatctcttt	240
gccttcatca	agctttgcca	gatgctccat	accaacctct	cacaaggtgc	agcttcggat	300
aggagaaagc	atagcctcta	tcttcggaga	gctgatcaag	agcttgggat	agtgccaaac	360
tgctgcatag	agtattgggc	taagaaacag	aacagtagag	gaaagagaaa	tttaggtctg	420
cttgggagta	gatgtagtag	cgaccgaggg	ttagac			456

(2) INFORMATION FOR SEQ ID NO:980

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 478 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...478

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:980

```

cggccgaagc ccagaccgat caatgtctgt tcgatcgcag catgatagtg ccoctgctgca      60
tgagagagag ggtctcgctc atattcgat aatgctcttc agtcggatat agtcacccga      120
ttcgtagtcc gtacgtccgg ccatttctcg gacagacgcc gtatctcttc ctctatttgg      180
cgaatatcgt tgaaagctgc tcgacctctt cgtaaaccgt gtgtccgtcc tgcaaaccga      240
tcaccgcggc agatagccta tgcggatccc cttggggcgt gctatgtgtc cggagtcggg      300
tcttccatgc cggcaatcag cttgagcagc gtactcttgc cggaccgttc tccctacaa      360
gagcgatacg gtcgcgcctg ttgatgacga atatacctga tcgaagagca gacgggtgcc      420
gaaatcgaca gtcaggttat tacggagatc atgacttcgt gctcattcgn ttgatgat      478

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(2) INFORMATION FOR SEQ ID NO:981

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 928 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...928

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:981

```

agtctttctac tcatggagag gcaccagcgg aatggactac tatcgatgcg atggcgatgg      60
tcagggttgg ctctgtctgt cttccggaca attggactgc tgacagctca tggcggcagc      120
aacgtagtaa gctctttctc atggaatgaa tggtcttgaa tcctgataac tatctcatct      180
caaaggatgt tacagggcaa cgaaggtaaa gtactactat gcagtcaacg acgggntttc      240
ccgggatcac tatgcggtga tgatctccaa taagggcacg aacgccggag acttacgggtg      300
tgttttcgaa gaaacgccta acggaataaa taagggcgga gcagattcgg tctttccacg      360
gaagccaatg gcgccaaacc tcaaagtgta tgatcgagcg tacggtagat ttgcctgcgg      420

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gcacgaagta	tgttgctttc	ctcactacaa	ttgctcggat	ttgaanacat	tcttttggat	480
gatattcagt	caccatgggt	ggcagcccca	ccccgaccga	ttatacntac	acgggtgatg	540
tgatggtacg	aagatcaagg	aaggtttgac	cgaaacgacc	ttcgaagaga	cggcgtagct	600
acgggcaatc	atgagtattg	cgtggaagtg	aagnacaagc	cggcgtatct	ccgaaagagt	660
gcgtaaacgt	aactattaat	ccgacaagtt	caatcctgta	cagaacctga	cggcagaaca	720
agctoctaac	agcatgatgc	aatccttaaa	tggaatgcac	cggcatctaa	gcgtgcggaa	780
gttcgaacga	agacttcgaa	aatggtattc	ctgcctcatg	gaagacgatc	gatcagacgg	840
tgacggcaac	aattggacga	cgacccctcc	tcccggaggc	tctcttttgc	aggtcacaac	900
agtgcgatct	gtgtctcttc	ggcttctt				928

(2) INFORMATION FOR SEQ ID NO:982

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 679 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...679

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:982

gctcatatcg	gcggacagat	acgcacctac	agagaggacg	ggttcgtgtc	gagacagggc	60
cgaataccgg	cacgatctcc	tctccggaag	tggccgagta	ttcgaactgc	tcggattgga	120
acctgagata	gccactcctg	cggcctcaac	cgtctgatat	ggaaaggcaa	caaactgtat	180
ccccttccaa	ggaacacgcc	gaggcagtcg	ctactcctct	cttttccctg	tgggacaaat	240
ggcgttccct	ggcgaaccct	tccgccggag	aggcggacaa	cccaatgaga	cggtgaggcc	300
ttggctcgtc	gccggctggg	caaaaagtctt	gtggactacg	cagcgatcct	ttcctcggag	360
gtatttatgc	aggagatccc	gaccaactgg	ttctcgcttt	gccctgcccc	aactatacga	420
tctggagcag	cgatacggca	gttcgtactg	ggcgccgttc	gaaaagcccg	acagccgcaa	480
agcgaacgcg	ccgcaaagcc	tcgcgcaagg	tcttttccgt	acaaggggga	ctcggctctt	540
ggtcgaagct	ttggccgact	acatcggacg	cgaacacatc	ctgacggaac	gcaaataccga	600
tacatcaatc	acccggggagc	acacaccttc	ggccttacta	tacggatgct	tcggaagaag	660
agcacaccat	tccttgccg					679

(2) INFORMATION FOR SEQ ID NO:983

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1425 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1425

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:983

```

ttaatgagtg cccctttgag acatcgaacg accatgaccg gcaacagcat tgtgctcctc      60
caatcatcgc cttgctcccc gtatatgcac ctgtgccagc ttgtgccgtc tgattcacat      120
tgcgctccata cgagccgata ccgcctcggc tccaataatc catccggcca ccatcggcac      180
acagtagcaa ccaatatacc tatgaggaga cctttgcacg gcaattggga tctctaacac      240
attaatcggg cttattccgg acggagcatc atcaggccta tatgtgtgtt aacattcaaa      300
tgcgatcgcc ctgccggatg gacgatattt gggactcgaa tggtagatat tcttatattt      360
gcgaccatat gagaaaatca ctcactatta aaatcaaaaa catagaatga agaaaacgct      420
tttgctcgct gcggtagtgt ttgcagcagt ttcgtcgtac aagctcaaca gaagagtgca      480
gacgtttagt gaatcagttc actactatta aagaagtgcc aattacgccg gtgaaagata      540
ggccaactca ggtacatgct ggtcatactc tgcattagga ttccctcgaag cgaaatcctc      600
cgtatgggaa agcccgaagt ggacttggcc gaaatgcctc cgtagctcaa tcatacaagg      660
acaaaggcga gaagtatgta cgtatgatgg gaagctgaac ttcggacagg gcggttcctt      720
ctacgatggt ctctagtggg gaagcactac ggcgtcgttc cacagtctgt catgcagggc      780
ttgactatgg cagcaagaag aatgctcaca gtgaattggc cgacggtgct ctgcctacct      840
caaggctatc gtgacgaatc ctaatggcaa gctcactcct gctggaaaaa gcctatgatg      900
ggatcatcga cagctacctc ggcacatgct cgaaactttc acttatgaag gtaagaccta      960
cagccgaag agctttgctc gtatctcggt cttaatgtcg atgactatgt gtcgctgact     1020
tcttatacga tcattccttt tacacacagt ttgccctcga aatcgaagac aactggcggg     1080
ctctctctcc tataatatgc ccatcaacga gctgatggag actatggata tgccatcaac     1140
aacggctatt ccatcgcatg gggttcggac gtaagcaagt gggctttacg cgtgatggta     1200
tcggcgtatt ggccgacgta gaaggatcga agccaaaggg tcggatcagg atcgttgggt     1260
aggattgagc cgtgcgagaa gcaggcagag atcattcgta cggttaatag tgccgattgt     1320
cctaaatcaa cccactcaa gagttccgct agaaagggta cgatgagtat agctcaccga     1380
tgaccacggt atggttatct acggtatcgc caagaatcag atgga                        1425

```

(2) INFORMATION FOR SEQ ID NO:984

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 602 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:984

```

tctcagcgcg ggattgtttc aaccgcagga gcttctcttt ctactgcaga gtotccatag      60
ctaccgaagt ggccgaatca gccgctgcat cttgagcgaa gcctgagtca tgaagcctac      120
tgacataaag gccacacatg caattgtgca aataactttt tcatcgcgag tcttttgttt      180
agattagtac ttttcgtttc ttttatcttg ttccttaata atcttctgcg cggagagagc      240

```

gggatcgaac	ccgcgaaacg	ctttcggcgt	ttacacactt	tccaggcgtg	cctctcaacc	300
actcgagcac	ctctccttgt	cattccatta	aaaactccct	accgtcaact	tgggtgcggc	360
tatagcctta	tgcatacagc	tcataaccac	gattatgggt	gggaggattg	ccgatcaata	420
caacgtctta	accggattca	tcgcaaactc	atgttttttt	catcattcca	tccttatatt	480
ggagcacatt	ttcagttgga	atacttaaat	cggacgaata	atttttccct	cttgaaacta	540
aaaccgaaaa	aacggcatgc	atttcggggc	gttttttcag	ccaaaatacc	ggatccagtc	600
ca						602

(2) INFORMATION FOR SEQ ID NO:985

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 490 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...490

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:985

ctatgtcccg	atccacttgg	gattcgatgt	gccggctcag	tgetacgc	catctatgca	60
aactccttgg	gcgctatcca	gctctacgag	gacctgtg	ccggatgtat	cgccacctcc	120
acgaggaaag	tctccccggg	ggacaaaaat	ccgaaacgat	ccgaacgatt	tggtctctgt	180
ctatcatctc	gctctgactt	attggacatt	gggataaaca	aaaaggagga	accttgatcg	240
ggtcgctcct	ccatccatcc	gtaacagctg	caaaggtaat	cttttttact	atgggcata	300
aacttgcctt	cgctgcacat	cccacaaata	tgtgcaacac	aatgtaattt	tataatttta	360
gcaagangca	ctcgaacgga	gttctgaatc	cggtttcttt	ctggctatgg	cttcagtttg	420
ttctgtataa	tggagatctg	ttggtcgtta	tatcgatgaa	agattacatt	gaggcatacc	480
tattatacat						490

(2) INFORMATION FOR SEQ ID NO:986

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 409 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...409

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:986

aacatttacc	tcaactgcaa	cagtggattg	ttctgtctat	atatggagga	tactaatatt	60
tctcacaaca	ttagaaattg	caaaaactta	taacctcgaa	tactaacc	taaaagagta	120
aaaagatgaa	aaagttatcg	ttacagatat	tggactat	ttcgctgctg	ctgttctgat	180
ggtatttctg	acaggggcga	aaaccggttt	gacttggagg	acattccgca	agaagcggaa	240
atccgacacg	ctcgccata	ggcgagacgg	ataacggcag	agaatacctg	ggcctaattt	300
ttacctgaca	agttcggatg	aagtggtttc	ggacagtcga	tccgagcaga	aaggaaaatg	360
ctggcccgtg	catttaacat	tcagaccggt	cttgggagca	attgcttag		409

(2) INFORMATION FOR SEQ ID NO:987

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 554 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...554

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:987

cgttgttg	gcaagagcac	gtgatgctta	tgctaaagga	gatacaattt	ttttaacagc	60
aagaattaca	cactggggaa	tgaacgtaat	cttggggagt	agtaaaaaag	atgcctggca	120
tgggaagttt	gaccagacag	gaaatattca	tatcaaggaa	agaaaattgg	aaaggtcttg	180
gttgacgggc	aggatattta	tcctcttcct	ccggtgttgc	catgaatacg	cttcctcctg	240
atthtccaat	tcgatagaa	ttatacggat	ggtgatattg	cccagctttc		300
aaggcataag	aacaattagc	cctcaatctg	aagtccaata	aaaagttgct	ttaagcgggt	360
cttttgaagg	cggangcggc	ctgaaagaca	aattatcagc	aaagcatctt	tgattacagt	420
cttaccaaaa	atatctgcc	gaccatcatt	aacgccaata	atacaggtga	ggctgttttt	480
tcgattcaag	ttatatgtcg	aatatcatag	actttgaatc	gatccgaagt	ggagcttcac	540
gcagacatct	ttaa					554

(2) INFORMATION FOR SEQ ID NO:988

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 421 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:988

```

atcttctata cttgatatta ttgattacct cctattgtca gataatcccc tatagttgag      60
aatattatta atgaaaatgt tgaattctat ggaatgaaat atttcttgaa gaaagaagct      120
acatcctaata gaggaaggca cctcattagg acaagggtacg caagatgtgt attggaagga      180
gcaagaggaa tatecttgcc atacatacag actcactctg tgggtgagat gagaacaatt      240
ctgacaggat gttttatgtt cctcagcatg aaactaaagt tggtaatcgg aagtcaatat      300
gaccttcagg cattttttgc catttaatta tctaacagag gattttattc atcagcaaac      360
acttattttg atacggcatt ttttattaat cgagttatga tggtttcoct gattatgcat      420
t                                                                    421

```

(2) INFORMATION FOR SEQ ID NO:989

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 571 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:989

```

cggatgaaag cggattgctt tgtggacttc agaagtttgg ttatgatatg caaggaggaa      60
ggcaagtatt cccaaactgc aggtctataa caatgcatga agatggtgta tagccctttt      120
acctttgaac aagcgaatgct tgatcgcatg cctgggggag aatcttcgaa tcaggcattg      180
gagcctacct cgtcagcagg cttttgttca tcgtttcgag gtattttatt ggcgcgaacg      240
agacgtgaag tcgatttcgt cctgcgcaag aaaaggttct gttgttgcca ttgagtgaag      300
agcaatgcag agaaaaggac agacgggctg gacaaatttt cccttccttc aagccccaat      360
cggcttttat tctcggagat ggaaggtgtc aggccgaaga ctccctttcg atggatatac      420
cgaaagttat ctggagtgtc cctgtttttt tgcaaacagc acaataaaaa attgatgcac      480
ttaaagagg cctttccgat agcaatcttc acctgatacc ggaatttgtc tttccgatac      540
aggtttacag aatgagagca aaaacctaag a                                                                    571

```

(2) INFORMATION FOR SEQ ID NO:990

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 616 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:990

cgccaaaccg	gtcataaaga	agaggaagaa	agtgatccag	aagctttgtc	acctttctcc	60
ttgcgcacatca	ggttgaaaga	aataccgatc	agccccaag	caacggaagc	atgtaggtag	120
acatttgtgt	ccgcgattct	tggtcataag	tccggcatgt	catccgtagg	accgataaga	180
atcttgtcaa	tgaaggaata	cccgtcacgg	cattgccacg	caatagtcct	ccgtcgcctt	240
gcaggcattc	tgacggccgg	aaaaattcca	aaggaaataa	cgccagtaca	tatattgacc	300
tgataattga	agaagaattt	caggttctct	ccgaatgtag	gcaactggta	tccgtttcgg	360
atcgccccat	ccagatatta	tagctttgcg	gagtccatcg	gtagtggaat	agacacgtgg	420
gaaaagcatc	atggaaccat	ccctaactcg	attcgcggtg	tgtatagagc	gtttcgtaac	480
gacccattatc	gtaggattta	ccttgggcga	agccctgtta	cttctgccat	ccttcaacca	540
cagggtggga	tgcaaaggaa	ggcccgtaga	tcacgggtac	ttcgtatttt	cgcgagcaag	600
gtagctacaa	gccgaa					616

(2) INFORMATION FOR SEQ ID NO:991

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1214 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1214

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:991

cgcattccgt	cggatatgct	catcggcaaa	ctggaatcgc	tcacgcgttg	tacataaccg	60
gacgatcgg	aagagaaata	gcatgaagaa	ggagggtgtc	aataatcatg	gcgcacctcc	120
ttgcattaat	atgggacggt	cgggtaccgg	gctattccga	gactccttaa	ggagtcacct	180
ccgagaccct	taaggatctc	caccaagacc	cctaaggagt	ctccaccgag	atccctaagg	240
agtcctacca	agacccttaa	ggggtcccaa	cagagactcc	ttaggggttc	ctcatgcttt	300
acttcaggag	gggttcgtgc	ggtcttataa	tccattcgaa	tgggacatcg	ggagcagtga	360
ccggcgaaaag	gaagccgaag	cttagcgaat	ctaccgtcga	acagattgat	gatgcggccg	420
gcactacgtg	catcgtgctc	gagtgcgtca	ccatgacgat	ggttgacact	tcgcgattga	480
gacctctgag	agttccatga	catcggctcc	gtttttggag	tcgagggttac	ccgtgggtta	540
tcggcgagga	tgagcttcgg	attggccacc	acggcncggg	cgatagcccg	cgctgctgtt	600
gtcctccgga	gagctgattg	gggaagtggc	cggcccgtgg	ctgatgctca	tcttgccgag	660

tgccctcctcc	actcgcctctt	tccgctggag	gccttcacac	ccagatagac	gagcggcaac	720
tccacgttct	cgcttcgcgc	atctcttcga	tgagggttgaa	gctctggaat	acgaagccga	780
tattccctta	cggacggcag	tccgtgtctt	ttcccggagg	ttgcccactt	ctgcccactg	840
agcttgtaga	taccggaagt	gggattgtcg	agaaggccga	ggtattgagc	agagtggact	900
taccgcattc	cgaaggcccc	attatggcga	taattcgcc	ttgtccactt	tgagcgatac	960
gccatcgagg	gctaccgtct	tatttcttct	gttctgaaaa	ccttggtgag	gttgctgatt	1020
tcaatcattt	tttacttggt	tttatgaggt	gaaaggaaga	gcgacaagcc	ggacaatgct	1080
ggtctatgaa	tccgccgttt	gccggattgt	cgccgtattt	attcgtacgg	agttcattga	1140
caggggttgcg	gcgagctatg	cgccggagggt	tgatgaaacg	gccaatgcaa	taatcaggag	1200
gacgaacaga	ccta					1214

(2) INFORMATION FOR SEQ ID NO:992

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:992

aatttgtatc	tgaccatgt	gttgcatctt	ttggggatag	ctcgcattgcg	aacttcaaac	60
ccggcacaag	tgtattggat	ttgggtacgg	gtggagggtc	cccgggtattc	caactggcgat	120
tttgttccct	caagtctctt	tccgtctgtg	gacagcatcg	gcaaaaagggt	gaaagtggct	180
tcggccgtag	ctgaagattg	gggcttgaca	atgtgcgcac	tatgcactgt	cgggcagaaa	240
gcatagtgag	aaattcgact	tcatagtcag	ccgtgcagta	atgaagctga	gcgactggcc	300
aagatctgca	ggaaactcat	ccggcgtgaa	gatcagcnaa	atggctcccc	aacgggctta	360
tctgtctcaa	gggtggcgag	cttcaagcac	gaatactgcc	attccggaac	aaggcnatga	420
cagaggagct	atggccgacc	ttaagaagag	tatttcaaac	ataaaagtgt	ctactacctc	480
tatgacacga	tgaagtaaag	atgtcacctc	aattcgtgca	gaa		523

(2) INFORMATION FOR SEQ ID NO:993

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1514 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:993

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gagtacagaa tcccagacct tagtcccttc gtgtccgatt ttcattcagcc gaaggcaacg      60
aaagtcagac atatcagcaa ggcactccac gagccgttct gtccatgaag cctgcataac      120
gcatagccgt ggcccgatcg atacgccatg tttgtggccg ataaagacgg cactctgctc      180
tgccagagcg aaacaaatgc cacggctcca ctgatatgga agaaaagctc caaaccggca      240
ggctctccttc cgagttgaaa tcctccagta gcatgccggg gaaagcagct gcgaaatcag      300
gatccccaac caatagagat agaaacgggg cctcaaccct tgctcttgct ggatcgagtt      360
ttttcgtgag atgggttcct catagcttct cgatgacaat attcggttcg atttgtttaa      420
taccaacgcc ttccggtggg ttcatgccct gcgagacgat agccctgcga ctcttataag      480
atcaattcgg cagagagccg aaggaggagg gtgaggcaaa ggcactctcc agcgtgcatg      540
tccgaccagc gtacgggcac aattgatcac cccgccatgg cagaagatag gatggagcga      600
taaccggcag ctttcttttc caggatgaag tcccgcagcg ttcgaaactgc tctcgttgcg      660
attcgccgcc ggatacgggt tcgtcttgta gcggcggaaa aatgcttcta tgtctgtcgt      720
gtccagaatt tcttccaggg tttgccttcc cagtcgccga agttcatctc cttcagccgg      780
tcgttcggat ggcatcgga tagccgcaaa aggcgcgcaa cttggccgca cgcgcagagg      840
gctggtaaag accgcctcgg gatcgaggcc tttgagacgg gccaaagccg cgcagcctcc      900
tcttcgaagg tgtctcgaac gtccacatcg ggaatccgta gcagtgcctc ttgccattga      960
acagcaccga ggtgtggcgc tcagatatat tttcatcagt ggattattag ggtatcggtc     1020
agaaaaaagc ttccgaatcc gacaaagata gtagaaagag agtgcattctg aaaacagaca     1080
ttcgaggatt atcgatcaac tgaaaaggca ggagttgttt tgcgtttggt tcgggaaatt     1140
acctgatcag cattcgtaa aacgtggcgc gagaattttt cggtttggcg ccaagaattt     1200
taaaattttt tggaaaccaca gcgaaaaaat ctgcgcctgt tttctcagga ttacagacc     1260
acaatccgag catttcgggt cgtaattcat cgaagagaca ggttttacct gaaatcagag     1320
agaaatatcc gtagtccaac ggttcatcct tatatcagag gttaaaagat atgtacgctc     1380
atcgaggagc tgattggctt agtaggtgag actttcttaa ggacctatcg gcacctacag     1440
gaagttcatg gcacacaagg caaaggaggc atcttcgcag accggactca tatcaaaagg     1500
atgaaacgac tggg

```

(2) INFORMATION FOR SEQ ID NO:994

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 520 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...520

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:994

```

aaaacccatg gtcttcgccg gtgtatatcc gatcgaagca gangacttca gaacttgctg      60
gcttccttgg agaaactcca actcaacgat gcttcgctac gtttcagccc gaaagttcgg      120
tggtctcggg attcggattt cgttgcgatt tctcggtttg ctccacatgg agatcgtgca      180
ggagcgattg gatcggagtt caatatgaat gtgatcacga cggtgcccaa cgtttcttat      240

```


aaggttacga caagaaagggt ggctgcaaag aggttcacaa tccatcgga ctgccgaacc	300
cacgcttata gatcatatag aagaaccctt catcagagct tcttcacac caatacggcc	360
tatatcggcc ctatcatgac actttgtttg ggaaaagagg ggtgttggtg aagcaagaat	420
atatatcggg cgatcgtgta ggatcttcta ccgatctttc attgggcca aatcgtcac	480
gacttctacg caaactaaag agtatcttcc aaggatatgc	520

(2) INFORMATION FOR SEQ ID NO:995

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 605 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:995

cggacatacc tgtcccgaca ggggtggtgcc attggggagg taacgtttcg ggcgcgctcc	60
acgcccgttct tccatgtatt gatggattca tcgttcagga catgccctgt acgagatgta	120
ccacctgctc gataggcata ccgtagccaa gacgcccag atgagcttgg catagtcca	180
gtattcggga ttgaaactgct atccaagcct tcgatgggta ccttgaaacc tttcttggtg	240
cagaatggaa gtcgtagtgt cgttcgccgt tttcgtccct gttcttgatt atctgccgtg	300
ggtaacgctc ttcggtagca tgataccttc gtcgtcatcg gcttaccggt gaagatttcg	360
taaggacgtc catccttgag gcctacgaaa gcatccactt ttcacgattg ttttggaagc	420
gaacgacctc tgcctccagc tgcgcggacg ggagataagc atgctctgta ctgtgggttg	480
gagagctgcc gctcctcttt cttggctttc ttcttcggct tgtcagtgat aaggacgcc	540
tgcgcgaacc gtcgcgatag acagtacagc ctttgcagcc gctcttctg cttccacata	600
caggg	605

(2) INFORMATION FOR SEQ ID NO:996

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 953 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...953

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:996

agctccgttg	ggaaaggccc	tgctccgaen	cgcggtgcaat	aggccttgat	atcccgtaga	60
catcgcccac	attgcgagga	gctactccca	agccggtaaa	cagccggcac	atatactgatt	120
gctactgggtc	acgaacgggt	aagaaccaag	tcaatgtcca	agagcgaacc	ttgggtcct	180
tcggccaaaa	ccttntgccc	gacaaaagg	caccattgat	cagaaattca	ctgtccacga	240
attcaacttg	cgcagatatt	tngtagcctc	catccagcgt	tcctccagat	ccgcagcttg	300
tccgtaggat	agttcagggg	attcagtatg	cgaagatgac	gctcttgccc	accgaatagg	360
cctcttcgaa	gccgtgttcc	aaatctccga	cagcaagccg	ttgaggctca	ctttgtccgt	420
atatgtgggg	ccgatccctt	tcctgtgggt	ccgatcttgc	cgcttccctt	agccatttcg	480
ttggcagcat	caacagccga	tgcgtaggca	taatgaggtg	ggccttgccg	gagatcacgg	540
acgcttggtc	agatcgtagc	cgctgcgggc	aagagcttcg	gcttcttctt	gaaaagcagg	600
ggatcgagta	ccactccatt	gcctatgaca	ttcgtttctc	accctggaag	attcccgaag	660
gaatggaacg	aagcacgtat	ttctcccgtt	gaactcaagc	gtatgtccgg	cattggggcc	720
accttgaaa	cgagcacaat	atcgtagtgc	ggagtcagta	catccactat	ttttcctttt	780
ccttatcgcc	ccattgcagg	ccgagaagta	catccacttt	ttccatatcg	gataatgtta	840
tatgtctgtg	ttattatttt	ttcttcttgg	gagcggcttt	gtcgccgcct	ttttgagggc	900
cgactgcttc	ttcctgcatt	tgtcgcatat	acatagaggc	aaatgatggc	ctg	953

(2) INFORMATION FOR SEQ ID NO:997

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 662 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:997

ttccggagca	atattccaag	ccactcttta	ttgcgcatat	gcagaaatcc	gcgaccttcg	60
tggtgcgata	aaaacgcgct	gttgtgtact	gaaaaaagtg	acagttggga	tgtgcgggat	120
tcatataagt	ttacacacat	atccggtagt	cctatgcagg	ggttacaact	gtcggtcggt	180
atttccctt	gcacaccaca	cgttacaact	gtcggtcggt	atttccctt	gggtttacac	240
aacaagcccc	cctcccaaac	atttaggaca	ctattgggtt	tttagtacct	ttagctgtga	300
taatattcag	atctgctaca	tgaacaacat	ggggacggct	gcaacaagct	aacgatattc	360
tatgtcggta	tgcttcttct	ctttttgatc	ggctttggct	tttcgccact	atcgggaaa	420
agttggaac	caatgtagtc	gcaaagcgat	gtcccttcgg	gggccagggtg	gattggtcgg	480
tgctttcgat	ctttcagcga	atcggtacat	caccatttca	cggacactat	cgggtgtctt	540
gttgagatc	atcgatttct	tacgggtggc	agctcgtagc	gtgggttttg	aaaatcggcc	600
agccactgta	tcggtgaaat	cgtggcgga	tctctggcat	ctctctggag	cgttggccga	660
gc						662

(2) INFORMATION FOR SEQ ID NO:998

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 473 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...473

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:998

cgaagattat	cggcgaaggc	cgtaaaggcg	gcagcaatct	ggctgccacc	tggatcaatgc	60
catactctgc	tataacgatg	ccgaacaact	cagaccgggc	gcgatgtgtg	aagctactta	120
cggaggagct	tctcctcaga	tacggcgcgag	cgattcgtca	tactcgggat	gagcgatgac	180
cctcatcctt	tcttcctcct	gcggctatga	cagctattgc	ttccggcaag	atattcagcg	240
gaggcaacgg	catcatgaga	tcgtgcgcgg	actactccct	gcggatgccg	agtgatagat	300
attacagtac	cgctggatga	tgtatttgcc	cgttatcggg	agttgaggag	atagttgttt	360
tcgcttcggg	ggtaccgctt	ttcttcgggt	ttccaatacg	gtgatgaatc	ggctacccga	420
tgccgtggta	cggctctatcc	ccgttcaaca	gcttgcatag	gcttgctatg	ctc	473

(2) INFORMATION FOR SEQ ID NO:999

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 580 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...580

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:999

cggcaggatt	ggatcatttc	ttgcgtcgag	ccaaactcag	ccataccacg	cggtatcgt	60
agctacggct	gcagcagtgc	ttgtccctat	ccagatggcg	gccagaactg	ggatgatcat	120
gatcgctcgg	gacgctatgt	gggacgcatt	tcggtgtcaa	ttacttggag	agctgcgacc	180
ccaatgccgt	tattttacct	atggcgataa	cgataccttc	cccctctggt	atgctcagga	240
ggtagaggcg	ttcgtaccga	tgtccgtgtg	agcaatctca	gttacttggg	agcaactggg	300
atgtgcgcca	gatgaagcag	caagcctatc	agtccgatcc	gctccattga	agaatatgaa	360
tgaagccttc	atcagccgga	atgcctttgt	tctgtcgatc	ccaattactc	tgccagagat	420
ccggagctga	acctccattc	atcccgggta	gcggactcac	ggccgatggc	aagcccatca	480
tgatgctgtc	gaagccatga	aaatagcgct	cgtccggttc	cttatggaat	gggtgtgatc	540

cgtctgagaa cctgtattgc ccgtagattc gcaagcattg

580

(2) INFORMATION FOR SEQ ID NO:1000

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 421 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1000

gaccatcggc aatggattta ctatttattc ggaaaatgcc ggtatacaag gagtgtttcc	60
ctcagcctca cctacagctt cggtaagatg aatacacagt gcgcaaggta gagcgtaga	120
tcgtcaacga cgacctcaag caaacctatc ccaaggacag caggggtggcg gacaaggaaa	180
tcctaccggc aattgacaag aaacactgta aaaaaacacc atacaatgag aaaaaagatt	240
ttcgcggcct tgtcgggtctc ataggcacag cactgatagc cgggtgcatgc aatacaaatt	300
cgacaacaaa ggcaaaacaa tcacccccaa gggcgatgcc atccggagac tcgcaacatc	360
ggtacattcg acaagatcga tgtcgaggat gcttcaacat ccactacaaa gccggtattc	420
c	421

(2) INFORMATION FOR SEQ ID NO:1001

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 750 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...750

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1001

cggtggaatg tgcaaacttc aaaaatgttt gtatatatca aaagaattcc gatatttgct	60
tgcgagaagt tttaaataatg tataatctta aaaaaacaga aaatgagaaa attctttttg	120

acagtettat	tggcaggagc	gttttcttcg	caaatgcagc	cgatgttact	gcagtcactt	180
gttcaacgcc	taacggggag	aaacccatgt	aatggttttt	tgtacggacg	gcaggagtgtg	240
tgatttatct	tgaaaataca	gggagatgag	acagattaca	acaatgtaat	gagtaagtta	300
tgcaagcagc	aaagagattc	tgcgcttcta	attttccatg	tttaaagtga	gtcaaaaattt	360
gaacgcagaa	gctcctcaga	cattagaacc	caaacatcct	caaatcccat	ccctggtaga	420
aaaattaagt	gatcattgta	aggagcctta	tagtattcac	tataggctcc	ccaaccctca	480
cataatatga	aatccaatga	cgttatttcg	cattttatct	tactttctac	ttactatagt	540
ggtatctatt	ccccttctgc	tcaggaaata	acattggagg	ctttcaaaca	gatactcttg	600
ataaggtttt	ccttaataaa	tgcatttata	gggtatatac	caaactgaaa	ttaagcagga	660
cacttcacaa	aatctcccta	atagagggtta	acactgctac	agataggatc	aaaaatgagt	720
aaatttatcg	atttcacacg	cattatacag				750

(2) INFORMATION FOR SEQ ID NO:1002

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 357 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...357

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1002

cggcaaagag	atattgaaag	gaatcaatct	ggagatcaat	gccggagagt	tcattgctatc	60
atggggccga	acggatcggg	gaaaagtacg	ctctcttcgt	tttggtgagg	catccctcct	120
ttgaagtcac	ggatggagag	gtgacatcaa	tggaatcgac	ctgctcgaac	tcgaaccgga	180
agaacgtgca	cacctcgact	ctttctcagt	ttccaatatc	cggctcgagat	cccggggcgtc	240
agcatgtgaa	tttcatgagg	gcagctgtca	atgaacatag	gaaagcgatc	ggagagaacc	300
cgtatnggca	agcgacttcc	tcaagatgat	gcgagagaag	cgtccattgt	ggagctg	357

(2) INFORMATION FOR SEQ ID NO:1003

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 782 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...782

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1003

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ccgcctatga gtagtataat atagtatagg gcgcagcgtc aggtctacac tttggaaaac    60
ttctgccgga agaaaaagct ctgtcccaac caaaagcctc cgtatagcgg tagtcataga    120
gcgatccgcg gataaggccc gttgaatcga gtgtagtccc ctctccatt ttatagtcac    180
gtccgccgag gatagcccga ggatggaagt acggccggta cgttcgctt cccgaccgcc    240
accgaccgcc gctttttctc aaaagcttgc atcagactgt cccgattggc atagtctgtg    300
cttcttcatc ggtaagcggg gccgtcacta cagcgtccca gtagaagagt cgcgatcgaa    360
agctagttaa tcgaatcgga ccttgacctg cattcggtat cgggcagcat atacttgctg    420
ggcagatgat agcccagcgt accaatcggg attcgagcat ccgaagggtg cggtttactt    480
cgcggttcgt cggaagcgaa gtccctcagc tcttcgggca gtggatagca atttgcggtg    540
atctcaagcg aatcgtacac caaggacgaa aagtactggg actccagttc agtcccatcg    600
actgcatctc cataccgatg gcatagggtg tgggcagtac acatcctttt cgagcggatt    660
gagacttata tcgaccttgt accgaacata tcgtaagcct taatttccaa ttttagtgcc    720
tgcagacacc agatgtattc gatcaccac agntcgcccc tntggcgctc cttctgcctt    780
tg

```

(2) INFORMATION FOR SEQ ID NO:1004

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 465 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...465

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1004

```

cgggatcgaa tccgagttgt actacaagga tttggctacg ggcgagttcg tctgctgaag    60
aaaacacact gggacgacac cttcggagtc atcgcgtaa ctatgcctcc aaaaacaaag    120
acgaagccta tgtactgacc aacctggcag cgacaagact cgtatogtac tctacgacct    180
gaagcagaac aagatctccg cgagatcttc gccaacgaag actacgacgt cagcggcctg    240
caccttctcg taagagaaac tacgaaatag acctcatggc ctacgaaggc gagagtccgt    300
agtcgtaccc gtaagtgcc cctacaaaga gctgcacaag ctgtggaaaa ggaattcaag    360
ggcaaagaat tctccgtggg cgattacgat gagatgagac catcctgctt atcgccgtac    420
aaagcgacaa gctatacggc actactacca gttcgatagc cgcac

```

(2) INFORMATION FOR SEQ ID NO:1005

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 493 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...493

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1005

acgctttttca gttcgttcac atcgggtctct tcctgctcat aaccgaagcc tgtttgatgt	60
tcagttctac gccggacaaa ccgtatgaag agagcttctc ttgcactgt ctatctgagc	120
cggagaaacg gtagcaccga tcaatacact tctatatgct tccggttggt ctcttccagt	180
agctggctgc gtatgactgc gtattgggga tactgccgat cacctctcgc acgtacttgt	240
gtgcgtttcc tgaagtagat tggtgctgaa gagctgtatg ctccagataga tactggagca	300
atcgtaata tggcaatgac cgtaatgac cggcgcactt tctctctcgc tgtttattga	360
ggaagacttt gcgtgggaac ttcagcaaaa cgactgcaag gnaaggtagc cagtgcgata	420
aatacagaat tgatgatgaa ggatagaaa ccccgaaaga atatgcaaac tgcccagtac	480
caaggccgaa ccg	493

(2) INFORMATION FOR SEQ ID NO:1006

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 788 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...788

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1006

cagactcttt caagtgcgaag tcgcctatat caccctatc aatcagggca tacgggtgcga	60
tccccagac gatgcgctaa ctgccttttc atttcgttat gctgcgcagt tcgttcatta	120
tttctaattg caattcgatg tcgccggttt ttgagcttgt gcgatttctt ttgcaaagc	180
acggatttgt acctgataaa aacattttttg atgggtgagaa gtgcgcgttc cactcgcac	240
tgaagtcttc ttccgcattg ctctcatccc ctttcccata gtgaatacgg ctcatgcata	300
gcggttggtc agtagctcga ctgcgatatg actgatctgt gcatgggggtg atctctgaaa	360
tatttggtg cgacaaaacc actgtcgaac gatgttcggc agcctcatcg agaactctgcc	420
taaacacatc agtaccaata tcaactccatc cgcattcaag tctgatttga tgtaatatgc	480
caaggcaacc ccgatggagt ctgcttttcc gctccttctt catgcctgta tatgaggagt	540
ttctttcgcc gtagcgaatg atcagacgga gtaactctc ttctgatttg ccggatagta	600
aggttgctcc acctccgctg aacgattatc ggtaggattt cggcactatg gttttccgca	660
cctacgagat tgcggaatc gtttttcttt cagagccatt cgccggctgt tgggtggcgg	720
gttgcgggga ggagtcgtac tcctacggaa cctcatcttt tggacttcgc gagccagcag	780

tcgccatc

788

(2) INFORMATION FOR SEQ ID NO:1007

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1227 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1227

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1007

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ctcatctact tattaaacca ttcaagacaa attgaaaacg aaagcaaact atcaacatgg      60
aactgcccga agaaatagct cagggcaact tactgcaact ctgtatcgtg atgcactctt      120
ccgagcgaat ttgtottgga cttcatcgta tggttccgaa tcgtgacacc gcacgagtcc      180
aaaatcgcat catcctactc cggacaatgc caaaagactt ttgaccactc tctcggacaa      240
tattcctcgt acgaagtgga acacggcgag atccacaccg agcaacgcgg tatcgatgcc      300
acatttacat tccaaccaa aataaaaaggc gaagcctaag aaagctttcc tctctatccg      360
gtcctctcaa aatagtggca gaagcatccg tgccatattg agaggatttg tcgatcctgt      420
tgccggacatt acttacctac atcggactgc ttctctcccg atacgatacg tcatgcccgg      480
gtgctgatcg ccgcagtatc accaagtgca caccggctct tctgcaagggt actgatgtgg      540
gttgataacg actgccacgg ccggattcga ccacatcgac cgcgaatatg cgaaagccac      600
ggtatcctct ggcgcaattc ccccggtcgc aatgctaggc cgtagcgcag tatgtaatgt      660
gctgcctgtg tcgtctggct ttgcgcaggg tttttccctg aaagagaagg taatgggtat      720
agtgggtgta ggccagtagg cggtagagctg aagcgtttgg cctccgccta tggcatggag      780
ttccgctctg cgatccacct cggtcggagg cagagcagga caatagcttt ctctctaaag      840
ccgactgggt gagcagtgcg acattatctc attccacggt ccctcaccca tgaagaccct      900
cacgccacct atcacctcat cggtaggctt ttctacgcag ctgtgcagac aaaaggccta      960
tcctgatcaa tgctgcccga gagccgtagc ggatacccaa gctcttattc gggctgtcaa     1020
aagcggatgc tccaagccct cgtaatagat tgctgggaag gagaacccga tatagaccca     1080
gctgtttgga tttggcagac atcgcgactc ctcacatagc aggattcctg cagacggaaa     1140
agccaatgga gccagaatgt gccttgaagc cattacgaag tattcggact ggaatttccc     1200
ctgctgcata ctttagcccc tccccac                                     1227

```

(2) INFORMATION FOR SEQ ID NO:1008

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 319 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...319

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1008

tcaaagacct tatcctcgaa atggaagacg aagtgttggc aggagctggg tggatgtggt	60
tgaagaggta ttcaaactta tcttcaccaa actttttgtg agatggagag cggacggcaa	120
caatgagcgc aacctcgagt ttcgcaatat ggcgatacgg agaccgaact caaagagcgc	180
atccaaaatc tttttgtaaa gctcgtgaca aatgggaagg tgtattcagc cccgatgcca	240
agataagctg acgccctctc acctttctgt ctgcgtagca tcgttgcagg acgtaagctc	300
ttcaattcca atcttgatg	319

(2) INFORMATION FOR SEQ ID NO:1009

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 525 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1009

cgacaccgaa atgatctttt cggaagagct tctctccgtt gataacagga ggctgcccgt	60
aatctccatc cccttttgtc cggaatcag gcgttgtggt acaaaggagt ggccattacg	120
acgacacaga cgagtaaaaa cagacactct tcatcaccat cggagtttca ggttatcgat	180
tcgttcggct cgcaacggtc ttctgctgc acgcagaatg tcagggttcg tccaccgtta	240
cgctctaaag cgttacttcc agctgcttgt cttcgggcag ggagaactgc tccacgcaaa	300
gaccggctccg ttccggacgtc ttccccctga tccatgccac ctgtggcagg ctccaagcgg	360
ctgcaaaacc tgctcctgaa tcgctgtgcg ttggccacct tttatccacc acttgaagg	420
gatgaagtcc accgagcagg gatattcgct tgattttcga taccgacgtg gaagaaagca	480
gcccgttgtg gcatacagtc ctcgagagaa ctgatgctga atgcc	525

(2) INFORMATION FOR SEQ ID NO:1010

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 619 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...619

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1010

gtaccggccc	tcgatcggtta	ttatgtcatt	gacgtagcta	tatacattct	ccagatagga	60
agtattatac	gtcnatgcta	cctcccacgg	gaatgcccgc	ttctcgggtga	cgattatgga	120
taacgtttgt	ccaccagccg	gttctttata	cgggtcaagat	gacggacaaa	ctccttcaat	180
ccttcttccg	aacggataca	tcttgcttgt	agccactgcc	gtcttccttg	agcgttcggt	240
tatcctcagc	gtaagtgtaa	tccccgcatt	cagataagaa	agttcgcgga	gacgttgggc	300
agtatggagt	attgggtattc	cgtaacagag	aagatagagc	tatcgggttg	aactgaatag	360
tcgtccccgt	acgctccgtg	gagcctatca	ccccacatca	tgcaagggtt	tgccacagct	420
gaactcctgc	atatggatct	tccattacga	tacacctctg	cacgcaaata	tgtggaaagt	480
gcattcacac	agaaacgccc	actccatgca	aaccgcccga	gactttgtat	gaacccttgc	540
aaacttacct	ccggcatgca	atacggtcna	aaccacttcg	agagcacttt	accttctttc	600
tcgtgatagt	ccnccggaa					619

(2) INFORMATION FOR SEQ ID NO:1011

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 459 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...459

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1011

cccttgacga	cgagagtttc	ctcctggata	tagatttggg	tattacggga	atacgtgccg	60
agaagtcctg	cggcagggcg	atagcctcat	cgagagcatg	gtgtgcagcg	actgggtatg	120
cccccaggcg	gctgccatag	cttcgatcag	gtacgtccga	cattgttgaa	cggatcctgc	180
tccgtcagcg	accagctgac	gtctggctgt	gtgtgcgcag	agccaatgac	ttggggttct	240
tcgcccgaag	ctcttcacga	tcttgcccca	taggaggcgt	gccgcacgca	tcttgcgatc	300
tccatgaagt	gattgacgcc	gatggcccag	aagaatgaga	gacaggagca	aaagcatcca	360
catcgatacc	ggcatcgata	ccggctttga	gaactgcata	ccgtctgcca	gcgtataggc	420
catttcgatg	tcggcggttg	ccctgcctct	tgcatggtg			459

(2) INFORMATION FOR SEQ ID NO:1012

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 382 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...382

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1012

atagcttcgt	cggcgtagctg	tttcacataa	gcctcgtagt	tacggtttca	ctctgagcct	60
gtccgatcgc	tgtcccgaag	aaaaagagaa	cgaaacggaa	gtatctgcca	aatgtttgct	120
ctcatctggt	tgaaatagtt	gcaacaaaca	acgttagcta	caaaagtaca	aataaattgc	180
agtcggtcag	ggagatcgga	gcgatctctt	ttggaaat	tcagtctctt	ccctctataa	240
tttgatccct	gagatatgaa	ttcgtgcttg	ttttgataat	tgaatgtagc	aatctgaagc	300
tatacgtaca	ttaggagttc	aagtgcgatt	gccctgagtg	atcacaccct	ctttatttgt	360
tctttaatac	ggacagggga	tt				382

(2) INFORMATION FOR SEQ ID NO:1013

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 726 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...726

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1013

cgggagggtta	tggcttgccg	catcagttcca	tcgaagaaag	cacagtcctcc	cgtatcacga	60
attgctgctg	catcagcatc	agggagctga	cgatgatatg	gcgataatcg	catatgcggt	120
catcgatatcc	gcattgcttt	ccctgtaaaag	agaaggccgt	acaatatgaa	caagaaggaa	180
aagatgaaaag	tactgcaagg	cgtttgagc	gcaagatgag	cttgatatgc	agtgcattca	240
cctcgctatg	ataccatgct	gacgcacaaa	attcagattg	tggtaccgct	ccgtctgttg	300
gatttggtgc	gctctttagc	atagcgatgc	tgtctgaaat	accctggctc	gctatatatg	360
ttccggccaa	tatcgatgcc	atgcagatcc	atcgatatat	accggaagg	acgagacgaa	420
gcggaacagg	cagtccgacc	aggcacgaat	ccggtgattt	ctgtggcgag	catgagggct	480
atggcaccga	gacgatgata	tagaatcgga	gaccatcgcc	cagtatgcgc	ttcagatatg	540
agccaagagc	atatcggtca	gcgtaagcat	cagcagggtg	acgagggcac	agcgaaatcg	600

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gctgcccctt cttctatccc cgtcacaatg ctgtaagcag aaagaggaaa acgaagacgt    660
agtaattgat cggattggcc aatgggggaa tataaggtac tgtgctatgg ctttgcgcg    720
tatcg                                           .726

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(2) INFORMATION FOR SEQ ID NO:1014

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 631 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...631

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1014

```

cccagcaggg tgctaccctt actttacctg ccggatgccg tctgctgatg ccaataaggc    60
ccacatcaag gttcgggggc gcctaattggc ggagggcatc cggccaagcg agtgatgata    120
gagaatctgc gccacgatct cctcgtaagg atgtacctta taccctcggt cccggacagt    180
ggggcggtat tctttttctg aagagagtcg tggcaatgaa ctctggtata ctactatccg    240
caacgtcgat ggggaatcat tgccgaaggc ggtaaggatg tcaccacccc aaaatgcttt    300
tggagggctg tatggtcacc aatacgaag gctccggtct ggcgcttcg gtggctatat    360
ccgtattctc aacagtgaga tcagcaatac cccggctata ctgtagccct cttcggcagc    420
gtatgcgaat tgacccaaag cctgtttgca atttctatag atgggacaac cgccaagggg    480
aagccttgcg ctacgtgacg gcattcgctc ccgatgtggc aggcggatcc tatactccta    540
tcggacagtc gttgatttgt cacagtattg tcgatggcag tcgggtctggg tcaaacaggg    600
agataagaga gtggaggaga aatcagtcctg t                                     631

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(2) INFORMATION FOR SEQ ID NO:1015

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 644 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...644

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1015

aaattatttta	tcagcagatt	aatagtcaat	tgacggaatt	gcataataga	gagcctcctt	60
tcaagaagaa	gtgaggaata	tatataaaaa	ggcatatgta	agtattgtgc	agagtagttt	120
tattgcattt	tttctgaatc	tggaactttcg	cttaggttta	taggtatcca	gcagttttct	180
acaacaatct	tgcaattcac	cttttgtctt	tttccttctg	gtaaaaacga	aagtatctgt	240
tcagcatcgg	agatggcggg	atcaggcact	caacctctgt	tctctgtatg	gagcgttgca	300
aaacgaggaa	cagtttggtg	tcggcgggat	cctctgaagg	atttaaatac	cggtcgggtg	360
gattctctca	aaactactag	tagatccttc	caaaccacta	gtggatttcc	tcaaaaccac	420
tagtagattt	tctcgaaact	atagtagatt	tgacgtgtac	tgaaaaaagt	tgacagttgg	480
gcgggatagt	ctacaattgg	ttnactgggt	ctttctataa	ttctacttta	ggtngacagc	540
cttaccntta	ngtctaattt	cggntgacac	gagcaaagtn	agctctttnc	tgacatncat	600
cnntcggnat	agctcggggg	caatcttggn	nccatgcctt	ctgt		644

(2) INFORMATION FOR SEQ ID NO:1016

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1296 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1296

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1016

agatgcctga	aatacataat	gtggcaggcg	acccctcttc	cctgatggag	ctttcctcgg	60
ctttataccc	ggctccatcg	gtgaaacctc	tactctggta	tcctgatcgg	agcctggccc	120
tgctgatttg	gacggggatc	gogagctgaa	gatcatgttg	agcggtttgg	taggagcctc	180
agcaatggct	ctcgtatcaa	tgccatcggc	acgacggcgg	cgatgcagat	cactccgctg	240
atgcaattgt	ctatggaggc	tttgcttttg	gcttggtatt	tatggccacc	gacctgttac	300
ttctgcccg	acagaaaagg	ggaaatggat	cttcggttcc	ttctcgggtc	gatggctgta	360
ttcatccgag	tgctcaatcc	gggttaccct	gagggatgat	gcttgcgatc	ctgctcatga	420
acgtatttgc	tccgctgatc	gctatttctg	ggtggatagc	aacatcaaag	cgcgcaaagc	480
acgtatgctc	agaaatccta	accgctaaat	atttcgataa	agacatgaat	agagataaaa	540
ctcgtacacc	attctctatg	cctcgggtgat	ggttattgtc	gtggcgggtt	gctggcttac	600
gtctctcagt	cattggggcg	caggcagcgt	gacaacggaa	gatagacaag	atgcagcaga	660
tcctccgctc	tgtgaatgcc	ggaataaaga	taagggcaaa	gtaatagctc	ggtacacgga	720
cgtgatcaag	caagactgct	catcaatcag	gatggtacgg	tagccaagac	cttcgagggc	780
gagcgttggc	acaaaatgaa	gcattcacgc	tcaatacgcg	caatgctttc	aaacggccgc	840
taatgatcca	agcatttctg	tccctctcta	tatcgcagag	atgaggggtc	gaagaaatac	900
attgtcccg	tgaacgggtg	cggctcttgg	ggccgatctg	gggatacatt	gcactgaacg	960
aagactgcaa	tacgatattc	gtgcagattt	cagtcacgaa	ggcgaaacgc	cgggattggg	1020
agccgaaata	ctcgtctcga	gttttccggg	cagtttatcg	gcaaagaaat	cttcaaaggg	1080
gcgaattccg	atctgttgcc	gtagtcaaga	aaggccagaa	agccgaagaa	aggactatgt	1140
ggatggcatt	tcgggaggga	cgctgacgag	cgatgggtga	atgagatgct	catatcctct	1200
ctccgtcctt	atgctctata	cctaagaaca	acgtaaaaaa	ataagggtga	tgctactttg	1260
gaataaaaaa	aataggaaat	tcttctcggg	ccgcta			1296

(2) INFORMATION FOR SEQ ID NO:1017

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 599 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...599
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1017

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cggggtgggat tgggtttcca cgccttggct gtccggaggt ctccggaggt gctgtagagg      60
ccggcgggga aagcgtctgc actcggagcg tatcgggggc ttcgtggccg ccgaatcggc      120
cgcaactcgcc gccggccgcc cgatacttcg gggacgacgc tctgtgccgc tgccctgagaa      180
agacaaaggc agaggacaaa acgacaattc tccaacgact tccggacatg acggctacgg      240
tgtgagatta gccgatacgc tcgagcaggg ccatgattcg ctccagctct tcttcgatgc      300
gaaggggaatg gtcagcttgc ctttgccctt ggcgtcgcag tcggcttgac tttcgtccgg      360
aagaatcggg acaactgccc cgtgagcagg cgtattcttc cggcaggggac tgcttggttt      420
tcttctgctt ggcggggcgaa tggcaccttc ttcgcggtag tgcgccgcca gactttcgac      480
ggcacgtaca tcagtccctg cctgatgata tcggcataga gggcaagctg atgctcgggt      540
cggggatact gagcaaggcg cgggcatgcc ccatatctat tttcttctgg gtcagacct      599

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(2) INFORMATION FOR SEQ ID NO:1018

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 471 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...471
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1018

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tctacagact tttctcattt ttttccgatg ccgagattac cttggaggca atcccagacga      60
tctgaataca agctatgtac aggagcttcg tactctgcga tcaatcgaat aagtatggga      120
gcacagagtt tccacgatga agacctgact tcctcaatcg tcggcacaat gcccgccaag      180
tgctcgaagc agtggaaacct gccgcaatgc gggacttacc aacctgagta tcgatcttat      240

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ttacgtctac	ccgggcagac	gcctgctcgc	tggcaagaaa	atatctccgc	agtgttgctc	300
tctccccacc	ccacctgtcc	gctaccatct	gatatacgaa	gaagaacccc	cctgacacgc	360
ctactccatg	caggaaaggt	gcgcgaagtg	gagaggaggt	aagcctcgaa	ctcttccgca	420
tgcttcgcga	acagctgaca	gagccggtat	gaacactacg	agttcaattg	c	471

(2) INFORMATION FOR SEQ ID NO:1019

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 444 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1019

cgcgttctac	gccgaaatct	gcgatttccg	cacggcgaag	gacatcgggt	cgaccgtccg	60
gaaaagcatg	aaattctgca	tcacattccg	ccgacgccga	gcaggaagcc	tttatccaaa	120
agctgatgga	atttgcccg	accggtatgc	cgagctattg	ggtcgggaga	aactctccga	180
tcgggaagaa	aaggcgagat	gcttatcgcc	accgactacg	cccgaagat	gtcgctcgac	240
atcgatgat	ctctccttct	tacgaagacc	atatcgacaa	caaggcttcg	cactcgccc	300
actgatccac	gattattacc	ggaaatatga	acgggagaaa	aggaccccag	tttgttttct	360
cggatttagg	gcacgtacaa	gccggaccga	gtgaaacgtt	tacagcgaaa	tcaaacgaaa	420
aactgacccg	atgattatgg	gatc				444

(2) INFORMATION FOR SEQ ID NO:1020

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 530 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1020

ctaagcggaa	tgccgacctt	cggtatcgag	ctgggcgaca	tcgaacatcc	gaatacacgt	60
tggaggagat	tttccggtat	ttggccgatg	cggacaggcc	ctgtatcggt	gccatcgatg	120
agttccaaca	gattgcgaag	tatccgggaa	gaatatcgag	gctcttctgc	gcactcatat	180
ccaaaagctc	cgcaacgcaa	tttcattttc	gccggcagcg	aacggcacat	gatgcaggag	240
atgttgccctc	ggctgcacgc	ccgttttacc	acagtgccga	tatgctggag	cttaggccat	300
cgaggcggat	gtttatatcc	cctttatcgt	agggcatttc	gagaacgccg	atcgacgcat	360
ctcgcccgat	gatgcacacg	ggtttaccgg	ctttcaaagg	gcatactttc	tatatacaga	420
agacctttaa	cgaggctttt	gagacacgcc	cgagccgaag	tatgtaccgg	ggagatatcc	480
gagtcggcca	cgataatatg	atagcatcga	acgataccat	attccgcgag		530

(2) INFORMATION FOR SEQ ID NO:1021

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1306 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1306

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1021

cggtggcagc	gcaccatata	cccacactgt	tcgaccactt	tccctgcggt	gaatcagccg	60
tgttcgagca	gctctattat	gcacccatga	tagaggttcc	gtagggttcc	gccgaaatgt	120
tgccacacac	ctgccggctt	tcgggtgctg	atcccttcga	gggaaaatcg	tcgcatoctc	180
ggcatcctgt	tcccttgga	tgtttcctg	gcagagcacc	tgaagggggc	gcactctatt	240
ccatatcatg	ggtgggggtg	gaaatgcttc	gctcatagac	ctttccgacg	aggaatcagc	300
acgattgcaa	tggaagagct	acgcgatatg	ctgcgcatac	ctccacctgt	aagccggatc	360
tgctgcacat	ctcacgccac	cgccatgcca	tacgcaatac	tacgccgata	cggaaacttcg	420
gcaggacatc	atccggcgga	tgaaatgcgc	tgcccgggct	tgcatctggg	tggaatatg	480
catgggggaa	aggtatggca	catcgtatct	cacaagggtg	ggaaatggct	cgaagtatct	540
agaagagaca	gccatcgccg	aacgctctgc	cagaggctga	ccacgacatt	gcttttccct	600
cattgcgagc	tacaccccaa	tcggtccacc	cttctctcac	cctgttctat	ttattcagga	660
caaattcata	agcccgacaa	gccaagaaac	gactcttgat	ttgatacttt	atgtctatat	720
acagacactg	aaaaaagtca	attgacaacg	aaatctcccg	gaaaatgccg	tgtgacaatc	780
tcattatcgg	tttaacagct	cgcacggaac	ctcccactcc	ccgaacctgc	catcgacaca	840
gagcagatag	catcttccat	caatagatca	tagtatccct	tctgtgagac	cataatatcc	900
tctcatatga	gaccatagta	tcctctcgtg	tagaccatag	tatcctctca	tgtgagagca	960
tagtatccct	tcatatgaga	catagtatcc	tctcgtgtaa	gaccatagta	tcctctcata	1020
ggagaccatg	tattctctca	tgtgagacca	tagtatccct	ttatgtgaga	ccatagtacc	1080
tctcgtatga	gaccatagta	tcctctcgtg	taagaccata	gtatccctca	taggagacca	1140
tagtatccct	tcattgtaagc	atatacgactt	gggtcaaaat	acattccggg	ctttcctgta	1200
tcgattcgtt	gacatgacgt	ccctgatgag	acctcttctc	ggttgatgat	tttccctgtc	1260
gtgccatcat	tttggtcatt	gatcatacca	taaacacaca	aaacaa		1306

(2) INFORMATION FOR SEQ ID NO:1022

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 339 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...339

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1022

ttatcatggt	aacccttta	caattattcc	tatgcagaac	ttaatccgta	agagccgggt	60
catgaagatc	ggcaagcatg	gagagaccga	agcatcngca	cggttcacaa	cattttattg	120
tacttttagg	cctcathtag	aacgctagga	gcaagaaaaa	cagttgcana	cagagtatat	180
cgagagcgac	atcnagcgct	ggaatgggac	gagcatattc	nccgtcgtcc	cgggatgtat	240
ntcggaagct	gggcgatggc	actcatgccg	atgacgggtat	ctatgtgctg	ctgaagaagt	300
gctggacaac	tctgtggacg	aatttgtcat	gggtgccgg			339

(2) INFORMATION FOR SEQ ID NO:1023

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 514 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1023

ccctgaagat	acaaagaatc	aactcatacg	agaggatact	atgggtctcaa	tagaacgttt	60
tcgatttgta	tgtacttctt	tctgtgagatt	gccattactg	cttgcagcga	ggaatctacc	120
ngaggaanat	tgccgtgttg	ccgaacgagg	ccattgtctga	tctctcgcaa	gaaaacacag	180
tctgccaatt	ggctgagatc	atacacaccg	gatgttgcca	ccctgtgaag	tgtttgctat	240
gttttgctact	tgaactctg	ccaagagatt	cttaatcaag	gagccaggca	acaacgaaca	300
actcgggcga	atgggcttat	attttatact	catcagagtt	tgttttgtga	taggccaaagg	360
gtaagattat	ttgcccaggc	gactctgata	acaacgaagg	agaggcaccg	tgtagttcc	420
tctcctttct	attgccaaaa	atgacattta	ggacacgatt	gcctttgaca	gagtagatag	480
tggcttgaga	gaaaaagaa	tgggtaaaat	cagc			514

(2) INFORMATION FOR SEQ ID NO:1024

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 695 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...695

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1024

cggccgattt	tagccacgag	gctcgcggtg	gtcacgatca	ccaccacgag	ttcgaagtta	60
cgacctcett	cgcgtcctcc	ttcacgccgc	tcacgccgtc	tctcggctga	ggctccacgt	120
agcettccgg	tttttccagt	agcacctgcg	gctgagtttg	aacttgccgg	tcttcggatc	180
tatatcgagc	agcttacggt	gatggattcg	ccttctttca	ggttggtgtc	ctcgatggtc	240
tcgaacgttt	ccaatccact	tccgagatat	gcagaagtcc	ttccttgccg	gggagaattc	300
gacgaagcag	ccgatatggca	tcacacttgt	gatcttgccc	ggaagggttc	tccgacttcc	360
ggcatagcca	cgatgccctt	gatcatgccg	atgcagcatc	gatgcagggt	ttgttcgtac	420
cactgatctc	gatgacaccc	agccatctac	ctcttcgatg	ttcaactgtg	caccactctt	480
ctcctgtatg	cttggtgatg	ctttccgccc	gggcctatga	ctgctccgat	aaactccttc	540
cgatatgcat	cttctcgata	cgcggngcat	gaggctatga	ggtcatcttt	gtctcgggct	600
gagcttccat	gatcttgccg	aggatgtgta	ggcgtnctgc	ttggcttgct	ccagagcatt	660
ctccaaaatc	tcataagctg	agaccaccac	cttga			695

(2) INFORMATION FOR SEQ ID NO:1025

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 599 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...599

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1025

cggggaaaaa	atcccatcag	atcgagatgt	gcaatgctga	aaacgatgga	gtcagccaaa	60
ctgcagcatg	ccatctattg	cgggtaacac	ggcgcatcag	cgtaatacgg	ctcctctaaa	120
aaacaattct	tccgtaatgc	ccggtatatt	gcaatagcaa	gcaaagccca	acccttgcc	180

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ccctgcagca tctccttatac aggcttgtat aatgggcacc gctacggtcg atttcttctt 240
gccaaccgga gggagaaagg gcagaaggag ctttatacct ttgggtcgta atacacggcc 300
aaaagacatc cggcataaga gagtaacagc agtactgctt tgcccaatcg atctgatacg 360
gttgtaggcc caaaaaagat gtaggcctgt caaaaaataaa aaggcttgcc atacagcccc 420
tccccgaat accacgacgc taataagctt gtcgccaata gcaacggcaa gccttctgt 480
ccgtacccga tagagtaggg gctaagtga gtagagagat caggagatag ccaataatcg 540
tatcagagca agatgactga gtataggcca atctttaaaa agancctttt cnttgctta 599

```

(2) INFORMATION FOR SEQ ID NO:1026

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 538 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1026

```

cggcagcttt ttcccgtagc tgtccacacg caggagacg atatggatag ctgcgcgcgcg 60
atgtcgttgt gcttgaatac gatgtaaggc tgtttgecta tcccatcttt tccatgtatt 120
cccgggcgat gtcctgtaac tgctccgtgt cagcctgtcg tccggatgcg gattgagggg 180
acagtgaaac accgtctttt cgtgcggata cccgacggga tgcgcatatc catatcggtc 240
aatgccgttc aaagtctggt tctccgtttg catccacgct catcgaggag gtcaaatgac 300
ggaggcggtt cccgccgtta ctttggaataa gttatatccc aacctttacc catgcttttc 360
ggagcggtta tctcggcaac catcgttctt cgaagctact gtgagcccgcg ttcgttcttc 420
cagaagcgca aggagtctc cgtgtattgc tccagctttg cagcaaacgc gccgccgttt 480
tgacggaatg tacgtgtaat ggagcggacg gcctgatgta gagcacgcca accttgcg 538

```

(2) INFORMATION FOR SEQ ID NO:1027

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 671 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1027

cggacgatga	agcttgggtcc	aagctgtagg	agcaggcgat	atgctgcggt	gaaattgtgt	60
acctcttcag	ccggtttgtc	ccaatcgata	cggcagtctc	tttgaaaatc	ttcggagccg	120
gtcgagcatc	aacatagccc	ggaagttctc	ctgaggtatg	gagacgggtt	ctccttcgag	180
aaacaagtcc	actgtggcac	caatacggat	gcaccgagag	tagccatacg	ttcgtacaat	240
tcgccaaaagt	ctcttcatgt	cctataggca	acttctcttg	cagcagtact	tcaccgtatc	300
tatctcatgc	cggaggcgga	aggtggtaac	tcccgtttcc	gtacgccatg	gcgtatcgcg	360
tggttgatag	gggctgctcc	tcgatacatg	ggagcagaga	gccatgcaga	ttgattgttc	420
ccatgggggg	catttgccat	aggagcgagg	aagcatacgg	aaagccacta	cgatttgcaa	480
gtgcggctga	aagtcgtag	ttcatcgaga	aaagattcct	cgttcagatt	gtccggctga	540
gaataggcag	acccaattcc	tgtgcgtata	gtttgaccat	actgggacta	ccttatgtcc	600
tcgaccata	ggcttgctcg	gcatagtgac	cacagcttta	cttggtatcc	gttttcgacc	660
aaagctcgga	g					671

(2) INFORMATION FOR SEQ ID NO:1028

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 591 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...591

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1028

ccaaaaggaa	aagagaaggt	gatatgcttt	gatcatgcag	aaagagggca	cagaggtcgc	60
ctgtgttttt	ttcctacttt	tggattgcat	aatcgatagc	acaaactgca	tatggtattc	120
aactttctga	tagtttccga	tgaggtgaag	atttccgccg	agagatagcg	atcgactccg	180
aagctacett	cctcgactcc	aaaatgcgat	tctggactcg	gtgggctatt	cgcacagcga	240
gctaagtctt	ttttcctctg	cgatgaggac	tggcacaagg	ggcaggagat	tacgtgatgg	300
agatggacac	ggcctcgga	gaggactcgt	atgtgatgga	gaaacacgct	tggaagagtt	360
catcgaggac	gaacaccaac	gtctcgtctt	cgattcgact	tgatgacgga	gcgttacttc	420
tttatcgaag	tgatggatat	ataccgggca	aatcgctctc	ggagcctaag	ctccttacgt	480
cggaaggatt	cctccgcaac	aaagctctct	ggacgatctg	atggatccga	ctgccattca	540
accaagcaag	cccggggatt	ggatctggaa	naanacttct	tcggcgacgc	g	591

(2) INFORMATION FOR SEQ ID NO:1029

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 601 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1029

```

cggaatccat catcatgaag acagagttga atccgtcatt gtctgaacta gttgcttgat      60
cagaacattt gacaaacggc cattgatatg tgtccatggt cgataatctg attgtatcgt      120
tcattaaagg tgatgaatcc catactgagt cttgcataat ctgctcgacg gcagtgtaac      180
cttcttggtt caattgtctt tctcatcagg aataagcaca tctgccaaagt tgaaagacaa      240
gccaccttaa aagccatgta gtaacccaaa ttcttgatat catccaagaa tttgctggtg      300
tagctactcc gcagatcttg attacgctac cgataaatatc tcgagagcgt ttttcccagag      360
tacttcattg acatagccta ccttcttcgg taatattcgt ttaccatcag tcgccctacg      420
gatgtctcta ccatacgacg acaagttctc cgttctcgta atcctctaca tagaccttaa      480
tcggcgcatg atatcgactt accctcgat aggcatttgn cgcttcttca gggccataga      540
aatcaggccg tgccctttgt atgggacgta gcttggtaat ataatagagt ccaataccat      600
a                                          601

```

(2) INFORMATION FOR SEQ ID NO:1030

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 487 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...487

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1030

```

agttttcccg gttttcctac catcagaaaag tactgaagct tgatgctgag actgccgtat      60
aacatgaaaa acgagggtgac atattcgatg tatgaggatg aaactccgcg atactgccgt      120
tgcgcggtgga gtagcctccc gtggaaaaca agtgaaagcg tggcaaattg catcgaacag      180
ccccatcggg cccaacacaa aagcagtatc agcacagcag ttccgagaat atagacaccg      240
cagagcggcg tggcacctga cggatacgcg gcagaaaacg atcgtggatg atgccgtagt      300
ttccgcattg tatatttgcg aaacggcact tcctgcaccg agctagggag cagccctacc      360
gtaaagacca cgataccgat accggcctgc catgcataat gctacgccag aaaagaatgc      420
ctcggggcaa agactccacc tgggaatatc gtggcttctg tggttcgtga accggacatg      480
gtctcga

```

(2) INFORMATION FOR SEQ ID NO:1031

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1031

```

agtgcgtggc gtaaaccgcg tagtctacga catctcctcc aaaccccccg cacaatcgaa      60
tggaataaac aatgtcagcc catacaggaa tctgtacacg accaccgatc ctattcacta      120
ttataaaaaa ctgctttcat gtccacgacc aaccggaaga tactcgtaag gtaactacac      180
atcgccctcat cgagataaga gccgtgggga gaaaatctcc atgctcacag cttatgacta      240
ctcaaggcta agctggtcga tgaggccggg atggatgtca ttctttagg tgatcggctt      300
cgaaacgttat ggccggcaat gtcaccaccc tgcccatcac tctgatcaga tgatctacca      360
cggcaagtct gtggtcaagg ccgtaagcg tgtcttgtgg tcgtagatct tcctttcgga      420
tcctatcagg gcaactccaa aaagccttgt gtcggccat ccgtgtgatg aaggagacac      480
atgccgactg atcaaactcg aaggaggaga agangtgcgc gagtccattg tgcgaatccc      544
tcgg

```

(2) INFORMATION FOR SEQ ID NO:1032

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 813 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...813

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1032

```

ctcctttccg atatgattag caagaacacc ttccgaacat ttctcctatg ttgatccga      60
tatccataac cttccaaacc caagcggcac ataccattcg gccgacacac tccatctcga      120
caagggctgg gaattcagcc ggcatgaagc acggcatggc tgccggccac agtgcccgga      180
gtcgtgcagt acgacctatc cgtcatggtt tgctgccga tcccaactac agacttcagg      240
aggaaaggca caatggccgg aagagcacga ctgggattat cggtgctct tctcctcacg      300

```

gaacagcaac	tccgaagcct	acgagccatc	cttatggcag	aagactggac	acctatgcca	360
ccgtattcct	caatgggaaa	aagataatgg	aggccacaat	atggtttgtc	ggcagagaag	420
cggatataac	ccggtctact	ggaaaaagcg	gaaacgaact	gctgatccgc	ttccgctcac	480
ccatgaagga	gtacgccctc	tgagacagcg	cgatggtttc	gactaccctg	cagacaacgt	540
caccacaacg	aaaagctaag	tgtatatact	cgaaaagcac	cctaccacat	ggttgggact	600
gggggcctcg	actggtaacc	acaggtgttt	ggcgaccgtc	ggcatacgtt	tcgaaggggc	660
agtagccttc	gcacgcgaaac	cggaagcacc	tacacgctga	caaaagatgc	tcaggtaaac	720
tgtctctttc	ctctccttgg	aacgagcaga	acgaccgctc	tgtccgttgg	ttgtggaagc	780
tgtaagcccg	aacggacgaa	aagtgcacag	cga			813

(2) INFORMATION FOR SEQ ID NO:1033

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 592 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...592

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1033

cagcattcgc	agtcgttcga	catcggtacg	gtacgtctgc	tcagcgaaag	gttcgccctt	60
atgttcgaga	agcattccgc	tcggaactca	tggccattca	aaagaatata	ccgacatcta	120
cgattatcgg	cacgggaggc	aatatcatcg	ccttggtccg	ctgagcggat	cggacagggg	180
gtcttctcgc	tatagctcat	gccggtagaa	gcactgcaca	agacatacga	cctgctcaag	240
cccattcaac	cgaagaacga	atggtagcgt	tccacctcaa	acccgaccgc	gcggtgtaat	300
catcccggca	gcagagattt	tccttgaggt	ggcggacatt	accgagccaa	aaccatcatt	360
gtcctatcgc	taggattggc	agatgggtatc	atgaagacct	ctatatacgc	caccagtctc	420
aaccctcatg	aaacgacagc	aaaacagcgg	aggaaagcag	tgancgatct	ctgccaccgt	480
agggcaagcc	atgccaatcg	gttactgac	ctacagaagt	gttggctttg	tttacgtcac	540
atacggggat	catcctctta	ttatgcgccc	aacatgcccc	acgccgacca	ct	592

(2) INFORMATION FOR SEQ ID NO:1034

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1002 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1002

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1034

```

cgttcggctt tgagcttcca cagcatcctg agagagtagt agttccacac cttaccccca      60
ttcatcatac gacctgaagc attgatccga ggcccgattt gaagacgatg tcgttcatat      120
ctatccttcg cttcttcaga ccgcataatc tattatagcc tgcaagccga gacaaggcg      180
tttattaagt tggcgcgctc gtaataggcg agtatgcggt tctctcccat gatagggaca      240
atatcgaagc tatactgaca gccacgaggt cgagcaaagg aaggagcttg gattgggcaa      300
attgttgctc cgagcatagg cttgcataaa cttgaacccg actcacagcc ggagagatgt      360
tcgtaaggat acgtattgtc agctcttttg gctccagcac cgcaacggca tcaggtagcg      420
tttcatccgg attgtgatgg tgcagataat aaaatcaatg tcaagcgact tggcgtatgc      480
caccttttcg cggctttgat accacagtcg agtacgatta tcagtttcgt tccgagagat      540
gagccaaatc aattcctcga taagagatac cataaccctc atcgtaccat ccggaatgta      600
gtaatccaat tgggtttcgg agcagcccgt ggcgcgcaat acttatagac gagtgccact      660
gccgtggtac cgtctacatc atagtcccgt aaatcatgat tttttccttt cgcctactg      720
ccctgttcag gcgagtacag ccttgtccat atccttcac aggaaaggat cgtggaagat      780
cctcaatctt gggcgaaaag aacgcttagc ttctctacg gaagctattc cccgcgtgcc      840
aataggcacc ccactacggg cgcgagcctt agctcccgac agatattgtc ccgagggaac      900
gttcctctgc ggtaaacggc tccaaattcc attgtaattc attatatgtc atttttttac      960
tttttcaatt gtgaatagca gaagtcgaaa cgatgggcac gc                          1002

```

(2) INFORMATION FOR SEQ ID NO:1035

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 470 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...470

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1035

```

ttggaaagct ctttcagagg cactttcgcc aaaagctgct cataaccctg cggtctgttca      60
taccatgat gatggcacga cgtccctgca tatcgctctg acatcgacca aataatcggc      120
aggaaccgat acttcacat catagacggc tccagaatct tcgggcccggc ttctttgaaa      180
gccgtgctga aagcatccga ccggccagca tgaacgatac ttcattgctg tccacagggt      240
gcactacca tcgtaaacca ctacgcgcac atcgcgagca tacgaaccgg tcagggaccc      300
tgctccatgc gcgacatgat gcctttcagt atggcaggca tgaacgcata tcgatggcac      360
caccactac gctattaacg aagacgagct tacggcccat tccaattcca ctacctgcgt      420
gtcgcgccgg agtgatacga actctggccg ccgaatttga acgattcggc                          470

```

(2) INFORMATION FOR SEQ ID NO:1036

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1007 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1007

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1036

```

cgtggcacgc tacgcggact gcttactacc gagctaaagc aaaacgaagt gtcgttgctt      60
ccttgtagca acgtatcctt gggcgcgctc ctgttcacat attatccatc ctactacagg      120
ggatataatc gttagagcct ggagaaggat cagagagcag gcagcacaga ttatcgaaga      180
ttcacctatc gaagctttga aatccgttct gttctcacct gcgaatccaa gaaaggagta      240
tgtgcaagtg ctatggtaga aatcttgcta ccaaccgcat ggtacaacgg ggtgggtcgt      300
aggcggtatt gcagctcagt ccattggaga gccgggtaca cagttactct ccgaacattc      360
cacgtcggag gtatcgcatc caatgtggca acgagaatag cttgctctcc aaatatgatg      420
gtatcttgga attcgaggaa cacgtgctgt ggatgtaaca gacgaatcgc atcagggtcgt      480
agtgaagtcg tgactgaatt gcgtattgcc gatccgaata ccggtatcat tttggccaac      540
acaatatccc ctacggtgca aaattgttct tccgccaaagg tgatgcagca agaaagggtga      600
caaatatcac gaatgggata cgttcaatgc ggtcatctat cggaagtagc aggaacactc      660
tctttcgaag gtgtagtgga gaatgtactt tcaagatgga aagcgacgag acgaccggtc      720
tgaaagaaaa gattacatcg aatccaagga taagacgatg gctccctatg ctcgaataat      780
agacagaatg gagagatgct caagaactat agtctcccga tgggtgcca cgtgtgaaag      840
acgatggcga cacagtcaaa gttggcgaga ttttggtgaa gatcctcnat cagtgggaaa      900
agccggtgac attaccggtg gtttgccctc ttcnccgaa ctattccaag cacgaaatcc      960
gtcnaatccc gcgatcgttt cgaaatccat gggaaatcng ctttggc      1007

```

(2) INFORMATION FOR SEQ ID NO:1037

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 835 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...835

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1037

tcattcttgat	cagaatattc	tcctcctcaa	tgccttccgt	ccgggtccgaa	gggaaaagag	60
aggtaagaga	tgattattgt	tggttcttat	tattgtaatc	ttgggggttga	agtctttcca	120
aatcttcagc	agcttttctg	tagcttctgc	agactgcctt	ggaactcgcc	gccggcagca	180
ttcttgtgtc	cgccgcaccg	aagttctcgg	caaggggtgtt	caccggatag	ttgcctgtgg	240
agcggatgag	agcttgatct	gatttttgtc	ctctcgcagg	aaacatacag	cctcatccct	300
gcaatatcga	ggggcagatt	ggccagacca	tcggtatcac	ccgcgggttg	tggaatcgta	360
ccagctcctc	tgctgacagc	gtgaagtatg	ctcgcccat	tccggcagca	aagtcatttt	420
ctcgtacagc	acataaccct	gacccctcat	ttgccttccg	aattttgctg	aaaggatttg	480
cggatgatcg	gtctttgtcc	gcaccggctc	gcataagatc	tgctacgagc	agataaagac	540
cggatcggaa	gagctgtagg	aaaatacgcc	cgtatccgtc	agtatcccgt	catcaaagcc	600
gtggccgcat	cttgggtcag	gtaggactcc	atgcctaggc	cttggccaaa	cgcaagacca	660
actccgaagt	agaagacagg	ggggggagct	gaagctgaga	gtgaagatat	ctgccggata	720
gagatgatga	tcgatagcac	tttgggggct	gacgaactct	ccaatgcgct	ttgcagtcct	780
gctaccgatg	tggaagcattg	aaatccatgc	agaagaccag	atcggttcca	gcctt	835

(2) INFORMATION FOR SEQ ID NO:1038

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 914 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1038

gaactaaact	tctcactcat	tattcaacca	atagaaaaaa	cagataagaa	ataatcattg	60
ctatggctct	tacaaaaact	tcaaaaactct	attacaaagt	ccacgactac	atccttatta	120
ttctgggatg	ctccatctat	gcttttgggtg	gacgggcttc	atcctttccc	aaggaattac	180
cacgggagga	ttggccgcat	ctccactctg	atcaagatcg	ccacgggtat	tccggctgcg	240
atactacaa	tatcatcaat	ctgggattag	cgtactcgc	tctgatcttc	ttggatggcg	300
tttcatggtc	aagacgggtca	taagcgttgt	cataatggcc	atttcatccc	gataggtgaa	360
gagtatctgg	tcgtcacgga	gatcgtcaat	gggtaaaagt	ttttacgcct	cttctactgc	420
cgaatgaacc	ggccttagct	cggatgatcg	ctccattctt	agcgggtctg	gtattgcat	480
agtattctcc	tgaactccag	tacgggcggg	accgatatta	tcgtagccat	catgaacaat	540
acaagaacat	gtcgttcgga	cgcgccattc	tactgggtgga	ctgtaccata	ttttgtgctc	600
gtatctggtc	aatgtctaca	tcgcccggaa	gtcacctccg	acgctttcaa	cctgcttacc	660
tattcggcca	tagaggttat	cctcgttcta	cagtcttggg	attggatatct	caattcgaat	720
agacagtccg	tgcaatcctc	atcttcagtc	tcaaaaacga	agagctcagt	aatgccattc	780
aagacgcata	aaaagggggt	gtaccctgct	ggatgcgaca	ggaggctatt	ccgccaacct	840
tgtaaagttc	ttgtggctcg	tgacgcgaag	acacaaagcc	taccatccac	agaatcattc	900
aggagatcga	cccc					914

(2) INFORMATION FOR SEQ ID NO:1039

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 613 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...613

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1039

cagaaaaaga	gacggacgag	gcctacagct	atgcactgct	caatgtgcc	ccgacggcct	60
tcctcgcttc	gtagagctgc	cacggctcca	gaccgacaat	tttattacta	ctcttttctg	120
gaagatatta	tcaaagagca	cctggattag	tcttccccgg	atacgagggtg	atggacagct	180
attcgatcaa	agtgtccgcg	atgccgattt	gctgttggat	gcacagcgtc	ctgaagatct	240
gcccgagaga	tccgcaagaa	ggtgaagact	cgcaagctcg	gtgctcctac	gcgatcatgt	300
atgacgggcg	catgcccgcg	gaggtgctgc	gatacatctg	cagtcgtgcg	acatcgatcc	360
ggaggaggcg	attcggagtg	gaaactacgt	catctgcaag	atctggctat	gctgcccatt	420
ccgtttgccc	ccagactgga	gcactcacgc	cggagcctct	cctctcgaag	catttgaggc	480
aggccccctc	ctgatggaa	gcattccgta	ggaaggacta	cctgattcat	gtgccttaca	540
tacgtatgac	tatgtcgtgc	gcctgctgat	ggaagcggcc	atctaccgat	tgtgtcggaa	600
atacgcttac	aca					613

(2) INFORMATION FOR SEQ ID NO:1040

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 572 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...572

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1040

cgctgatacc	gaacttgctc	gagccgtatt	tacgcgcctg	atgctgtaca	ccttctcccc	60
gatgcgtccg	aaaccggcgg	atttgcccaa	atatggaagt	aacgggtgcat	atcgntgtac	120
aactcgatat	tctccactac	ctcgtgtggt	atgctttcaa	accacaatta	aaatcgtgta	180
gcttgatgcc	ggacagtttc	gggctgtagc	attgaaaagc	tttgagggca	gattcttgct	240
gaacaaggat	cgtaccgctt	acgcttccaa	ccgcttacca	agtcatatcc	ccctctgtca	300
ccatccggta	cagctccggg	atctcatccg	gactatcctg	caatccgcat	ccatcgttat	360
gactacctgc	ccctgtgtgc	gggcaaaacc	acttgagagc	cggccgactt	gccgtagttg	420
cggcggaatt	tgatcccttt	gcctcgggat	gctctgcttg	caaacgttcg	atcacactnc	480

aggagccgctc gtacttccat catctacgaa gatgacctca taggaatagc catgctcatc
attacacgcc tgatccaagc aaaaagttcg gg

540
572

(2) INFORMATION FOR SEQ ID NO:1041

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 358 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...358

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1041

cggacgatcg	gaccggcaga	aaggccagaa	aggcaatgag	ggcagggaga	gacagtattt	60
catccggagc	ataaggagag	gtcaaaaagt	gaaaccgcgc	taactccata	acggaaaaag	120
ccggacttat	cgtctgtgcc	caccatcgac	tgaaatgaaa	agagaggtcg	ggagagatgt	180
tgaaatcgaa	caattcgcat	ccacataggc	atccaacatc	gtcaggaagt	agacaccgag	240
ggtaagatga	tactcaaate	cctgttgcca	cggtagtctc	cgtgccgcgc	ttgaacgagc	300
tttgagctgc	tcgctattga	cataatcggc	agggatcggc	ttcgtagggg	gggaaagt	358

(2) INFORMATION FOR SEQ ID NO:1042

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 902 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1042

cggttgagca	gtgctttcgt	ttcctgatag	agatacgtct	tattggccgc	cctcctcctt	60
tggctatgca	gagaaagtcg	tactccatgc	cgtccacgcc	atcaggtcga	tctgtgcggg	120
caggttgcac	cccgtattca	cctcctttac	atatccaaag	gagcattctg	cgaatagcgc	180
aggttctcct	gcgtatggta	tcatagacac	catgcgagag	ctgctcttcg	tcatgaccgc	240

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ccgtcagacc tgctgtccct tcttaccgag gatgatagcc gtgcccgtat cttgcagaaa 300
gggagctgtc ccttggctga aacctccgca ttgcgcagga aagcaaagcc acgaatttgt 360
cgttttcgct ggcttccgga tcggacagaa tcgagccact tgctgctgat gctccggctcg 420
caaatagaag cgatgtcatg aaagccgtcg cgcaagtaat cgcaagagct tccgggtcca 480
ctttcaggac tcatgatcgc caaacttgtc cacggacaca tactccttcg tcagcaaata 540
tactctgtcg tatcatcccc catagggaaa ggcttctgat acttaaactc ggagttgcca 600
tagtaattgt aactattgtt attaaagtga taatcggctc tttttcggtc tcccatcgag 660
gacatttcct tatcgatgca tttggatatt tcctctgcgg aggcatttgc tatttcctcg 720
agacaaggca gacaggacag tcatgataat gtcgtcgaag gaattcgaag tgatgcgatt 780
gcagtgtacc gtccctacagt cgcctcgcac atcgggaaga tcatgaccgc acaaaagcct 840
ctcccacaac ggggacagac tttccggcgg tagtttcccg aagattcagg ctcatatctc 900
ag 902

```

(2) INFORMATION FOR SEQ ID NO:1043

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 601 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1043

```

cggtttttga ttagtcttct gtagccttgg ccaagaatat aatagtcggt atcttttggc 60
ttcaggcaga tttttgggtg atagcagacc tttatcggcg gtcttgctat caccctcaat 120
ttgtggcttt ttctcggttt ttgtcttatt cggaaaaaaa cttttatgtg tttagtagag 180
tcttctgtag atacctcgat ctcatctaca gtaagctcta cgtagttggt ggcgagcaat 240
ctttgtgtgt ctttaagcact gattccgcaa agcctcttac ctcttcgtcc ttcagccgta 300
ttcgtgcaaa ggtttcttgg taagaaggca tccgagaagt tcaccagctt cggatatacg 360
tattcgggct ggcagttcag tatcttggag agttccagtt gagttcgact atatagccga 420
aaggattctt cttttggtat atttgaatac ctctgtgaag aactgatagt ttgcttctcc 480
atgcggcacg gatagtgcct ccaacgggta ggatagtgcg tggacggctc tactccgcat 540
tccgaagcta taccggcata gttgctggcc atgatcattc tccagcttcg agcggattca 600
g 601

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(2) INFORMATION FOR SEQ ID NO:1044

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1044

atccggattc	ttggatctct	actggccggg	ggccgtcatt	ctgttcaatt	actgtcagca	60
ggtatttact	tcgccgttag	tgtccgaaaa	ctcaccatgc	taccgtggct	tttcctcctg	120
actatgggag	gtgaaacgat	tttgttcgca	tactgacatc	caatctgaac	ctgtacggag	180
aagatctttt	cactgccttt	tcttcggcag	tatcggcttg	tgctatttcg	ttttatcctt	240
tatcaccttc	aaagacgaca	actgaaatga	ctgctatact	tcaagcacia	tccaattcct	300
ccaaatatcg	gacacgatca	aggacaggat	tctctccggc	gaaattcggc	cgacgaaagg	360
gtaccatctg	tccgcgaatt	ggccgaacag	atggagggtca	atcctaacac	agcgatgcga	420
gctgtcgaac	gcttgcaa	gaaggatatga	tctataacaa	gcgcggactc	ggctactttg	480
tcagcccaaa	gctcgcgaag	agatccttgc	ctctcgacgc	aagaatt		527

(2) INFORMATION FOR SEQ ID NO:1045

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 596 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1045

ccttacaggc	aagaaagccc	gtatcaaaga	gcgtcgcgta	gctctttctc	taaagactaa	60
tttgcttata	acggttatta	ggggggctta	tagagataat	cctcattccc	taagtattat	120
gcagagaggg	tgtatcgaaa	attgattcgg	tacaccctct	tctctttaac	ccagattggt	180
cattagagat	taacgttaga	atcaaggcat	tacttattac	tttcaaggaa	aaagaattat	240
gtccgataag	catgtatttc	acatcacccg	attgggtgaga	tgaaattggg	atgcgatgtg	300
atttctataa	gaaggtaagt	ggcagttatt	aagcagatta	caagaaaaat	ctctaataac	360
ggccattagt	ttttttgaat	gcaatccact	ttttccatta	acataggctc	ttataaactt	420
gaaggattaa	gcctaattta	gctcaccaat	tggttggtga	gacccgggta	acacctctgc	480
ttgcaacaac	tcccagtcct	tcttcaagac	acgctcaata	agcttgagga	gaaaaaagtg	540
gactggctcg	gcgatagggt	cttctgnaac	aacagggtat	cgaatcctac	aaagca	596

(2) INFORMATION FOR SEQ ID NO:1046

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 563 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...563

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1046

cgggcgtatg aagatcaatc agtggactcg ttatctgact gttgctatatt gattttacag	60
tctcttacct atttggtgaa cttgcgagtg caaatgcac ttaggagca tcgatgcccg	120
gtggcctttg gttccagata gttgcggtgc tattcttacc ggtggtagta tgtttgttct	180
gtggttagga gagcgtttac agacaagggt atcggtaatg gtatttcgtt gatcattctc	240
atcggattat tgctcgttta ccccatgcat ttgtagctga gttcacatct cgcaaacgag	300
tgctgttgga ggtttggttg cttttcttgc tgagattgta ttcttctttt tgcatagcag	360
gtgcaatcct tttggtacaa ggaacaagaa aatacctgtg caatatgcga agcgggttgt	420
cggtaataag cagtatgggg ggcacgcaa tatatccct tgaaggtaaa tgctgccaat	480
gtgatgccta catctttgct caagcgtga tgcattccg atctctattt gggatgcct	540
gtagatcagc ttcggggttc tga	563

(2) INFORMATION FOR SEQ ID NO:1047

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 421 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1047

cgcaatgctt ttcttgcgct gcatgagtag tcgcatcagt ttattggcaa catgctttcc	60
gggtacgaat acagtagtat tgatacgttt ttgccagttt gcccacgaaa catttcgctc	120
gaatggatat atcctactac gtcattctgn tctgtctgta gataatgatc ttggacaaac	180
cggtatcgat aaaagtgttt tgagtacttc aatatccgtt tgcaactcac atgctatcat	240
ctcatgcgtg ggatcatgca gtctcgacc tgaataccgg aaaaatccag cgcacttgga	300
tgattttcac ttcggtagtc aagtcgttct gttcgtttcc tccgacatat tttctgcaa	360
ataatgatcg agatctacgc gcccacccc tatggtgtag gcacataatt cttgtccacc	420
a	421

(2) INFORMATION FOR SEQ ID NO:1048

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 958 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...958

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1048

```

ccatcattgg ttacagtccc gcttttaggg ttaggcatca atccgcgagg cctaaaacac      60
gtcccaatgc accgatttta cccataatgg caggcatgtg atgatgacgt ctatgtcagt      120
cccaaccagc ctttattttt tctatgtttc gtcaagacct acatagtcag caccagcttc      180
tttagcttca gcttcttata aggagagcac aatgccagaa cgcggatctg ctttccagtt      240
ccgtgggaag cgttacaacg ccacgcacct tcctgggttag cctttcgggg gtctcaccca      300
agcgcacatc aatatccaca gatgcatcaa aattggccgt ggggatctct ttcaccaagg      360
ccgatgcctc cgatattgtg tatgctttcc cggttcaatc ttgctaaagg ctaacttctg      420
tttttttggt agtttgctca tttgagtaag attaaattat ttattcggga agtccocttt      480
aatcgcgata ccattgcttg agcagtaccg gctaccattt tcatggcagc tttgatatca      540
agcaattcaa atcgacaagc ttatcttctg cgatcgtaac tacttgctcc atgtgatttc      600
tgctaccttc ttacgattag gttctgcaga accactctct gtttgctagc ttcaagggag      660
ttgaatagca acaggaggag tttttagata aaatcaaaag acttatcggc atagtacgta      720
attactacag gcaatctttg ccggctttgt cttgggttct ggcattaaat tgcttgcaaa      780
actctgatgt tgatgccctt tgcaccaagt gcaggcccac gggggtgagg ggatagctgc      840
accacctttt attgcaattt gatttgacca gcaacttctt agcattgggtc taaaataaaa      900
attcagacac acactatata aatgcgagag aaaagatccg aacacaacct catctttc      958

```

(2) INFORMATION FOR SEQ ID NO:1049

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 373 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...373

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1049

cgggctgacg atcttcgata tgaacggccg tcgtgtagct actgctaaaa ccgcatggta	60
ttcgaagcac aaaacggcgt gtatgccgtt cgcacgcac tgaaggcaag acgtatacag	120
aaaagggttat agtgaagtaa ttcacacgca attctctata aggggctgtg ccgaggaatc	180
cattcggcac agcccttttg aattattggc actacgcaa gagactgttg agtaatcagg	240
cgagaaagag gatgctaaag gtcgtaaata acggctcaaa cccaatggcc cgttatctca	300
taccatgggtg cgcaagggtt acagaccata cacttgagat tattgccata gtgcttcgtt	360
ttaggtggag ata	373

(2) INFORMATION FOR SEQ ID NO:1050

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 469 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...469

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1050

aaagtgtttt aggcctgtac tccggagaca gtagttcaca agcatacaga gaatagcatt	60
gatgtggaat caaggatatct caatattgag agcgttcgtc ggtcaaaaga aacactctat	120
cttccaaaat tcaaattttac atcgggttatt gctgctcctt ttgcaaagtg gatttgacaa	180
atcgtatggt gagcaattgc ttagatgaaa aaaaggataa taggattagt ctgggttgcatt	240
tttttattta gttttgtggc tgtccgtatc atagagcagt tgtggaagtt tcgtacttgt	300
gtctaaggcc ggtagcggct ttttgagact tcccttgggt taggtaaaac cggagaagaa	360
aagaaaacaa catancagta ataattttta gttaacgcat aagaaaagtc tatgaaaaga	420
atgacgctat tcttcctttg ctgctgacga cattggtggg ctatggccc	469

(2) INFORMATION FOR SEQ ID NO:1051

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1346 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1346

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1051

tccgcaatat	ccgtaatcaa	cctacggcat	ggtcgggtgc	ttgccagttt	cgatcttttg	60
taaggaattc	ccgtctacta	tttcgaagta	ctccacttca	gatgaggcag	ggcattaagg	120
ctttccgtca	cccatcgcg	aacagctcgg	gtgtatgtgc	cggacggagt	gtgcggcttt	180
gtccgaggat	gcgagcatgg	atggggctat	ggcacgctct	tcggtgccga	ggcggacgtt	240
gcggcactga	gtgcaagccc	gtcctcttca	cggatgatag	gacaggccac	gatctaacgg	300
gaaatatagc	ttgtccggct	ccaccatcat	gagagtttgc	ttaccacctg	cgccacgcca	360
ttgaagtgtc	cggggcgatg	ctgccttcca	tcacttccgc	cacactgccc	agatcgaata	420
cgcgagtgtc	ggttcgggat	atacctcttc	tacggagggc	atgaatacgg	catgacaagg	480
gcttccgcca	agactgctgc	atcggcttcc	gggtgtcggg	gataacatcc	agatcgcgtt	540
tgctggtgaa	ttgtgttaga	ttgacaaata	cgcttgacag	caaagtgcgc	attcggctac	600
ggcacggtgg	atcagactga	tgtgtctcgg	tgcaaagctc	ccatcgtggg	gacgaggccg	660
atgggtttcc	cttcgcacga	gcattgtgcca	caaagtctct	gagtgaagcg	acggtgttga	720
atattccata	acggcattat	ttgttcttct	gttatgactt	tggtgataaa	tcctcgggga	780
taattttttg	caaaaggaaca	gattattttgc	ggattggccg	gttgatagag	agacttttag	840
tggtacttta	gccttggtct	atcgttatgc	ctcaaaaatc	aattcgatga	aaaaagtatt	900
atctctctta	atggtattgg	tgctatcatg	ttttactgcc	atgatgccc	gtcgcaaata	960
agtattcgtc	ttttgagttc	aacgccaact	tcaatcattc	gccggccggc	accggtgcgg	1020
cagtgatctg	ctcgggtacg	atctgaatct	gcggatgcaa	ctgcatctgc	cgaactaccc	1080
gatgccttgg	atttctatgt	cggcatccag	cggagaagag	cttttggcag	aatggaaatg	1140
ggccgatcat	ctatgtgaat	catccgatgg	gacaaaagag	aaattgaact	tcggcactgc	1200
tgaagcccg	ttcaagcgat	gcatacagca	agttgctgat	tgcttcggcc	cggcatatac	1260
ccttctatag	gcaagcggtc	ggttgg				1320
						1346

(2) INFORMATION FOR SEQ ID NO:1052

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 578 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...578

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1052

cgtcaaaatg	catcccggat	ccgattgctt	tttcttatac	ctttcctgaa	agtgggaaaa	60
aagacctgtt	caaaagctgg	tagaaaagca	ttggagagcg	aacttctttt	agtacgagca	120
cccactgggtg	ctggaaaaac	ggatgcacac	tcttgtgggc	ttctcatcaa	atcaaacaca	180
gaaaagcaga	cgccttatta	ttgctatgcc	cactcgtttt	acaacaaatg	cactagctct	240
aagcgatctt	cgaccttttc	ttctacaggc	ctgtatcatt	ccagtgcattg	gacaagaatt	300
tcagtagcaa	aatagacaac	ggggaaatag	cttttagagca	ggcagatact	atcataacca	360
agctcgctta	ctacagaccc	ctataacggg	atcaccatag	atcatctcct	ctcttcattg	420
actctttgtg	acgaggaaca	tagaccatta	cttttgcact	ggcaaatgca	tgtctcggta	480

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ttgatgaggc gatttctatg atcaatttac acaagctaata atattagtagt tactagaggt 540
ctaaaatatg gaaagtgccg atattgctga tgagtgcc 578

```

(2) INFORMATION FOR SEQ ID NO:1053

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 758 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...758

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1053

```

agaaccaccg atccgctcgg aagagctgtt cgccctcgacc gattttactc ctctgccgta 60
tctgcgactc cctccaccga tatgctctgc tatgtccacg cggccgttat ctggtgacta 120
ctctgagtag gggtttggct ttggctcgtt ccaccgcgca cacaagcgta ttctttacga 180
tcgtttcatg gccgacaatc aagacgtcat atcgaacagc aacaacttct cttccccgaa 240
ctcctgaatt caatccgtcg gatgcttctg ccgtgaaggc agctgtggac gaaccaatc 300
tgctgggttc gatttgctgc ccctcgggtg ctcttcctat tcgtgctggc agcacctgta 360
caaatcatag actgtgcggc agatgtcgtg cggatgtcat ccatactaca ctcgaagatg 420
gcagatcacc gcatgaacaa agctcgaact gattgccacc caaatagccg agtatcaagc 480
catcccttgt gcaagacacc gacagcagaa gaggccagcg atctcttggc cgagcttttc 540
ttcgaacgac tccacctata cgccggacgg caagctcatc gtcagtatat cgaagaggca 600
gatatagcgc gccgcttcga gtaggcagca tctctcaacc atttcttacc cttcagtcgc 660
tcgcccattc ctaagggatg gtcgtatgaa atgcctaaat tgaattaacc gaagtatctg 720
tccggcataa gtgcatgtgg agaaggggaa gagatggc 758

```

(2) INFORMATION FOR SEQ ID NO:1054

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1079 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1079

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1054

```

ctccaacgat tcggcctgga tttgctgggc gatatagtca tgggtgctctc caccacttta      60
tccataatat cgttagacaa gagaaggaca tccacctttc cgacacttcg aaaccgcttt      120
gcttgccgat attctgcaca cgattcaaag ttcgcgagcc agtccttcgg agcgaagctc      180
atctgtcact gtaatacaag ggctacggtc agattgcctt cgttggctac gaagccatcc      240
cggaatatctt ccgagacgat ctccacatcg gccaatcaaa gctctaccgg agtcgggcca      300
cttccatccg gaaagtgccg gccttctcga gggagcgtat ctctcctgcg tcatggccgt      360
tacagcttct gccaaagcct tcatacattt gcgtagcgtg ggccgagtcg tttgaagtcc      420
ggtttgattc gtttgaccag atacccatgc tgtcatccac gaatcgcagc tctttcacgt      480
tcacctcact aggatcagcg gctgtacgga ttcgatacac ctgcgctgct catcgtctaa      540
gccggtatca tcagtgtagc caatggttgg cgtactttca gattcacttt cggcgaagtg      600
ccagcaccat agacgaaatc tgctgagcca tctgcatctc tgttccagtg cacggtccac      660
ctgactttga tccggccggg ggaagacgcc aagtgcacgc tttcgtcttt gcccgtcaga      720
tctcggtaaa gtcggcagca tagaaaggac tgatcggagc catcagtttg gatacggtaa      780
gcaagaggta taaagcgtct gataggcaga gagcttatct tcggtcatat ctctgcccag      840
aagcgacggc ggcttgagac gcacatacca gttgctcaga tttcggagac aaaatcgctg      900
atggcacgac cggcacgtgt aggctcgtag tgctcagttg atcatccact tcacgaatca      960
atgtattcag ttcggaaagt tccagcggtc gatctccggc ctcttggcga aaggaatgct     1020
ttcttcttcc ccgtaaagcc gtccaaatta gcatagaggg caaagaactg atacgtatg     1079

```

(2) INFORMATION FOR SEQ ID NO:1055

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 479 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...479

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1055

```

cgggctttgg atctctgcgc ttccccgggc ggaaagagca cactcctaac aacatattgc      60
ccgaaggcag tgtattggtc agcaatgaag tgatccacat cgcgccataa tactggctga      120
gaaacatgat caagtggggc tatccgacgg tattgtcacc gaagcagatc ccgatagggt      180
gaaatccgca ggagagcttt cgacttcatt ctggtcgatg ctcttgctc gggagaaggc      240
atgttcgtaa agatgaggct actcgatccg aatggagcct gcaaaaatgt ggagtttgtg      300
ctcgcaggca gaagcgtatc ctctctgccg catgggaaat gttcagccgg gaggtctctt      360
ggcatacagc acctgtacct tcaatacgtc tggaacgaag acaatctggc cttoctcato      420
gatactttcg gagcgagccc ttggcttggg atggtctcac cgatggcaag atcggcctc      479

```

(2) INFORMATION FOR SEQ ID NO:1056

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 569 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1056

```
acggaattct gaaagtcggt atatatgtat tcgtgctgaa gcttaccac catacatcaa      60
tctgctcctt tcattctgga ctcggtgagc ctgtcgaatg tgccgtatat gctgcttcgt      120
acaggaagca agcatcctgc tgacttactg ctattgctta ttatgaactc ggctttcggc      180
aagagactca aaatgcagaa aatgagtaaa cagcggaaag atccccacga aaaacatcgt      240
ttccttttgt gatagccact atctgtgtgg tattcatcta tgcgatacgc ctttctattt      300
gcaaataccta agtccgaact ataaggctcg tgccgatagc aatctttcta tcagaagcct      360
gtatatcctt cgcgtggcgt gatatacgac cgaacggaga gctcctcgtg tataacgaac      420
cggcctatga ccttgtagcc ggacgaaaga ggtaggcgaa ttcgacaccc ttgcctcgtg      480
tcagaccttg atgtggagcc ggagtatgta cgcaagcgtt ttcaggacat aagggatcgc      540
gtatcaaccc cggctattn gcttacgta                                     569
```

(2) INFORMATION FOR SEQ ID NO:1057

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 408 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...408

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1057

```
gataatagcc gcacgtccgt taagcacata ttgacgagac ggcaagtttc atcaacgggtg      60
tgccgactac tcgacacgat gcagagctga aagccggcac agggtaatcg tgcacggac      120
acagctaccg gaagagctgc gccatccttg gtgcggatca ttggcagga cgactatttc      180
gtcctgatcg agaagaagcc ggagtctcca ctgtagccag tggcgtcaat aaggacagga      240
ctgcttgccg atcgttagcg atcatctcaa gcaatatgat ccggagggtga aaattttatg      300
ctcaacagac tggacaaaga ttctgccgga atggtgctct ttgcaagaat aaagaggtag      360
agggggttgt ggtggacaag tggccaagg tctattggaa cagcgttt                                     408
```

(2) INFORMATION FOR SEQ ID NO:1058

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1020 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1020
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1058

```

cgggcgcgaga ggtaaaaatt tttggaacca aaacgaaaaa tttctcgcgg tgttttcgcc      60
aaaacacgca ccgcaatccg accgtttttg gctcgtaact tccgacagta ggaagctctt      120
ttcatcggtt cgtgtagctc cttgtgaaaa ataaagatat gcccgaaaagg gaaataagat      180
tcggatttat taccggtaacg gcgcggaata ctctcttctc tttattatct ttgccggaag      240
cctgactttt ttatccttgc aggcaatcct aatgatgaag atactaccac acgtaccaac      300
gaaacggctc ccttgcgcac tgtcgactg gggttgccgg attgaccggc ggagcacctg      360
ctctcgccga cacctacgat gccaaagatt ataatccgtg ttacggggca cttatccttc      420
ggacgaggat atcaagatag aatggatgcc gtactcgatg tactgggtgc tcatggcata      480
gaggtgctcc tcccagaccg atagcaaact acaaccagat atttgcccgc gatgtggctt      540
tgccatcgat gacaaactct tcgtatcgaa cctgatagcc gatcgtgccg cgagtccgaa      600
gccttttcgc ccatttgggg ttgtgtcgga gagagcctct ggtacgcctt agcgaagata      660
ttcatgccga aggcggagac atcctgtata tgacgatatt cttttcatag gcacctacct      720
tcagaaggat tatcctcctt caagacggcc cgaaccaatg cacgggctgt agacttcttc      780
cgcgattttt cccacacaag accatcatac cgatagagct gatcaagcac gaccgatcc      840
catgcgctcg gtgctccacc tcgactgcgc ttccaaccc gtggccgcag cccgcgccat      900
agtctaccgc caaggattcc tgcactctga ggcttcggcc tgatcacaga gatatcggtg      960
gccggggacaa cctgttcgag ttacaccgca ggaagctata tgatgaatac caatatattc
1020

```

(2) INFORMATION FOR SEQ ID NO:1059

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 643 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...643

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1059

cctgcgagca	tcggtatagg	aataggagaa	ccaatgctcg	aaagatctgt	cagtccggat	60
gctttccaga	agaagtccag	ccccgtgca	tatcccttcc	gaggttggag	gctgtgccat	120
cgggagccaa	cgtggtcagt	cggaatttc	tttgtcatag	gcttggaggc	gtagcacttg	180
tgtacgcgag	ggtcgcattc	ataggtcagg	ttgtactgct	gcgagtgttc	gcgcttttgc	240
ggcacatgcc	atgggagagg	tagtagtcgc	cgggggcggc	atagcctcct	gcatcaaggt	300
gatccggctc	gaaggagaga	gcttgtaagt	ggctgacaaa	cgggtaggat	aatagccgac	360
tcggtaaagtc	cggaatattc	ggcgcgcaat	ccgctgtagc	ggagatccga	ttcgacagag	420
ggaagagggc	ttcggcatag	gtgccacaag	gtgttctcgc	agtgtgggta	aggctgatga	480
tttatcctcc	gaacagaaga	cttggttcgc	ctatatgtat	aatccggatc	cgtaggagac	540
ttcaagcctt	aatccgagaa	tcgaagcgaa	ggcggatatt	ggcatcgcct	ctacggtgcg	600
gaaagtgctc	tctatgtccg	ctcgatttca	agctgggggt	gng		643

(2) INFORMATION FOR SEQ ID NO:1060

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 348 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...348

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1060

cggtgatatt	catagtttgc	atcatcacgg	agctttttct	catgcaaaaa	agaagaaacc	60
ctgcagcatc	tcaatgacag	cctacatgtc	ggtcacgagc	tttgcttcgt	tccgacaggc	120
tttctactta	cgtggggggc	gggcttntct	acaactatgt	cagtgccaat	aaggtagtgg	180
ctaattgtca	taaactcccg	aacgcctctt	tcgtaggcag	atggtcggca	ttgacgactt	240
actggcgctc	ggatccctct	catagagcga	ctgctgagtt	cttctcccg	tcgtgaatca	300
ttcttacggg	cagccccgta	cgatcatctc	gcgatggagc	tgtggaaa		348

(2) INFORMATION FOR SEQ ID NO:1061

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 795 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...795

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1061

```

ccgccggact gtaattatgt ccccatcgag tcgctggatc agcagcaacc cctgtcgtga    60
tcgaaaagct caaggcactg cccgaagtgg aaggctaccg ctgacgaccg ccttgccggc    120
ttcttccggc cagagtggag ataacctatc gaccccggtta cggatcgtga gctgatcaat    180
gtggccgacc tcttctcgtg gacgaacact atctgaaagt ctacgacatc gagttgctcg    240
aagggaatac ttcgacgctg ccaccgaaaa ggacagagag atcatgctca gcaaaaagcg    300
gctaccgaat tggctcggct gatgaattgg aaagacggtg tcacggcaag aatatcatcc    360
tgacttcctt cgggcgagtg gtgattcgcg gttgtacgac gatctcatgc tccgccgtca    420
gcacctgagc ccttaccctg aaagctccct tccgccatcg tctatgggga cgattggctg    480
cattatctga gatccgcctt cgccatgacg atgccggct cctccatcgc gtgaatggct    540
cctctccgaa gccgatccct acaaggagac ttctttcctc ggtgtggaat ggagcttctc    600
agtcgcttcg aggcagccaa gacttttcgc aatacgacct cttcggcagt gtcgtggcta    660
tcctgatcgc tctgatcggg ctggtcgcta tgtgaatacg gaggtcaatc gccgtcgcaa    720
ggagctggcc attcgaagat caacggagcc ggagagggcg acatcttgcg actcttctc    780
cgctcatttt tcggc

```

(2) INFORMATION FOR SEQ ID NO:1062

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 905 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...905

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1062

```

cccctagagc ttggcgcggt gagccctaca gcgtagctcg aagagccgtg agcgcagctc    60
ggtagcgtct acggcgtagc ccgagtcgct gtagggcgag ctcgaccccc ttccggagta    120
tattccgaac ggctataaaa caatgctatt tggttggagt aaaagagtcg cccgactcct    180
ttttatggaa gccgggggacc gattaaagcg atcggttggt agagcatacc gatcgaaaat    240
aatcactcgt tactttacag cgagtttctc tacgtaggac ttgccgtcaa cgacaccatg    300
actgcatagt ggccgcctcg agccgtgtaa acaaccgtgt tgcacccgct gccagacgac    360
gaccgttcat gtcgtagatc atagcttcgc ctggcaagtt accgtgatcg tctttcctac    420
aactgtcagc gtgtaaggct ttgagccggt acgtctgcc aacgaagtga attcaacgta    480
gcagtttcga agctgattct ccgttcgggt aaacaacctt tacaccgtac gtgtaaaaac    540
ggtagccaa gtcgtagatc ggtaagtagt ctccgttacg cctgatgcat ctgtgtatta    600
ttacgataga tcgtataggt gtaagacgga gcgttcctga agtgattaca acatcatcaa    660
ggttgatcca gaagaagtcc gtacagcgaa gtgacggaag gcaacatact tagtaccgcg    720
aggcaactgt accgtttttg ataccaggtg ccctgagcac gaggaccacg aatggcttca    780
ggcgcgtaac aactgtcttg gccgtcagca cttcttccaa caaagcgtgc cgagttggaa    840
gccgtcgtta cccgtagaag atgcgtacac gggataatgc tttgatgcat aaattggcat    900

```


tcttt

905

(2) INFORMATION FOR SEQ ID NO:1063

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 933 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...933

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1063

aggatccccc	gatgataagt	gtgggaagct	cgccctctcc	cttggttcg	tcagggcett	60
gcgaatttca	tccgcacgt	tacctgcaat	ctctattact	tccaacccca	tgcacgatat	120
ttcatggctt	cgtcttcgc	ttgccactct	ttcactgtcg	tagaaagctg	tacgtcgttc	180
gagtcgtaga	acataacaga	ttgttcagcc	caaggtgtcc	ggcgattcgg	ccggctcett	240
gtgatcttcc	tcctgtattc	ctccatcgga	aatgtaggca	tagatcgttt	ggctatcatc	300
cagccgaagc	gatgagcag	gaatttggct	gcgatggctg	cacgacagca	taggtgtggc	360
cttgtcccaa	ggggccggat	gtgttctcca	ctcgtgcacg	acatctactt	cggggtgtcc	420
gggtgtgatg	ctgccccatt	gcggaatgct	ttgaggtcat	ccatggagta	cttgcccgtc	480
aatgccagct	agcatcacgc	atcggggaca	tatgtcccgg	atccaagaag	aagcgatcgc	540
gaccgggccc	attgcgggtt	cttcgggtca	aagatcagaa	tactcgggga	agagtacgtt	600
ttacaaagtc	cgctccgccc	atggtccgcg	cggggtgccg	cttttggctt	tttccaccat	660
tgcagcggcc	aatactcgaa	tattgtcgca	gccttggtca	tcagcttttt	gtcattcatt	720
ccttctaatt	atgttaggtg	agattatata	ttaaattgcg	attgtcctgt	gaccgaagac	780
atctttccga	caaaggttaag	aagttccgtt	cagagcacgt	ggtttactat	attaatagat	840
gatctttcgg	aggtcaagct	ttgttcctct	ccccttaagt	gcctgcatca	agcttttgat	900
ttcaaaagac	aactggtcgg	agtcggggga	tct			933

(2) INFORMATION FOR SEQ ID NO:1064

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 275 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...275

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1064

cggcggtgga	ggaggaagt	gcggtggagg	cggcgtcttc	aacgtaggca	atccaaagcc	60
aagctctatg	acaagaccaa	tatccacgtt	acattcagga	tgtagcaggt	ctgcatgaag	120
ccaagcagga	agtgggaag	atcgttcctt	cctcaagaat	ccatccaaat	acaccgaact	180
gggaggaaag	atccctaagg	agctttgctc	gtaggacctc	cggaacggg	taagactctt	240
ctggcaaggc	agtagccgga	gaggcgcacg	ttcct			275

(2) INFORMATION FOR SEQ ID NO:1065

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2216 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2216

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1065

gtcgatgatg	gcagcttctc	ccatcgaagt	gatgtagtat	gcaccttggt	aagcagcctg	60
tgtaaatctg	ttctactttc	catatttgtc	gaatgttata	ttgcttgctt	gtcagtgcaa	120
agatccaanc	ccaccttcc	ggctcgtcag	cttactttaa	gtcacacaaa	tgacgcgaag	180
tatacgagta	tggctctttg	agaatgatgt	atagccccat	gacgaagacg	aaccagccga	240
atgccgcttg	agtttgctc	cgtcaatata	ttgggagagt	ttcattccga	tgaaatcccg	300
atgatggcaa	aagctgttac	cgagaggaga	agccccagc	cgaacctgcc	ggattattct	360
ctcccagaaa	tcccagagc	gatttggtcg	attgattaca	agtgaggtgc	cgatagcttg	420
tttcatcggt	aggcctccga	gaagactaag	gcagggatga	tcaagaagcc	tcctccggca	480
ccgacaagcc	tgtgagcgta	ccgaccacaa	ttccctcaag	gaggatcagg	gcataacggg	540
ctgtttcggc	ttaggggggc	tctgtgatgc	tttctcctgc	attttagcgg	tctgatcatg	600
ctgacgggatg	ccgtaagcat	cagtacggca	aacaagacat	caggagcatg	ttccggtcga	660
tcgcaaaact	gcccggactc	aatacaactc	cggaatcgcc	ggtaccagat	aagctctcgt	720
caggaatacg	gcgaaatcga	tggcaggccg	aaaagcactg	cagtacgaac	gtccaccagc	780
gaacgcggaa	gtatgagata	ctcccagcca	cactggtagc	tcccacgata	aaagcgaata	840
ggccgtgccc	aagacagggt	ctatgccccat	cagatatacg	agacgggaac	ggtgaggata	900
ctccctccgc	caccgataag	gccgagtgc	agccgattaa	aatagatgcc	aagtaacctg	960
ctataagcat	acagtctccg	ttttatgatg	aggcaaaggt	catcatatcc	ggaacggcgt	1020
acagctactt	ggtcacataa	gggtgatttt	gttacgccct	aagcgaacga	tgccggatct	1080
tccaattggt	tgagcagcct	tgatactacg	gccctggctg	gtcccaatca	ttagccagtt	1140
gttcgtgcgt	gatctgtata	gtattaccct	ccacgattcg	gctttctttt	gaatgagggc	1200
cagtaggcgt	tcgtccatct	tcttgaagca	atggcattca	ccgtatctaa	tagctcctcg	1260
aatcgcttgt	gatagagcgg	aaagatgtag	ttgagccatt	cgggatgctc	cttcataaag	1320
aggaaacctt	atcgacgggc	aagaaaagaa	tctcggcatc	gtcttcgatc	tcaccttcac	1380
cttgcttgtc	tcattgtgca	ggcccccaag	aaaagacatg	aacagctttc	gcctgccttg	1440
atatagtaga	gcaggatttc	tctgccatcc	cttcggtagc	gattaccctc	atgaccctt	1500
tgataacgat	aggaatggac	ggacatgtgc	attctcattg	aggataacgc	taccggcctt	1560
gtagacctga	ggatgccatg	cttatacagt	ttgtccacaa	gctcaggcga	agagcgaact	1620

cggatatatc	ttctatctgc	ttcataggag	caaacataat	aaaaoagtac	gcaaccgaaa	1680
gaaatggaac	gaaaagcctt	tcgctctatc	tcttcctgcc	gcaatttaat	gcttgcatth	1740
tgthttattct	tttttcctcc	atattaccta	aaaaggatga	tacataggcc	caaaaacacg	1800
agcgaaaaaaa	aattcaacaa	cgaagatgtt	actcggattt	tgatgtgggt	cccctgcgct	1860
ctgtacattc	cgtttttcaa	gtataagcac	agcagtcatt	ggcaagagaa	aagaattgac	1920
taattttgtc	ttccgaaaag	cattgctccg	aacagtgaat	tccccgtgta	ttgaagtga	1980
caattaattg	aaaaaagaga	gtattatata	atatgccaca	catccataaa	ctaccgacta	2040
tgccccatca	cctgacataa	gcccgaacag	gtccttattc	ggatccttca	gcacagcagc	2100
gacagtctcg	atccgatccg	agattgtaga	gaggaatcgt	gcagctacat	cgaatccatg	2160
caaaaggata	gcactcttggc	ataggcccta	ccacatacat	atccgactgc	accctg	2216

(2) INFORMATION FOR SEQ ID NO:1066

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 488 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...488

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1066

cgagacccag	ctcttcgcca	gccgcggata	tgccaccctg	caagtcaatt	ccgcatctca	60
ggcggatacg	gcaaggaatt	cctccgtgcc	ggattcaaca	gatcggtcgc	aaagccatgg	120
acgatgtgga	ggacggtgtg	cgctatgtat	cagccaaggt	tgggtggatc	ctgacaggat	180
cgccatatac	ggtgccgcca	cggtgggtat	gccacgctga	tgggtcttgt	gaaaacaccc	240
gatcttatgc	ctgcggtgtg	gattacgtag	gtgtatcgaa	catttacacc	ttctcgactc	300
cttcccagaa	tattggaagc	cgtttaagga	aatgggtcaag	gaatttggtg	cgacctcgac	360
aatccggagg	aagcagctat	cgccaaggaa	gttccccctt	cttccagatc	gacaagatca	420
ataagccact	gttcgtcgta	cgggagccaa	cgaccgcgcn	cgtgaatatc	aacgagtcgg	480
atcagatc						488

(2) INFORMATION FOR SEQ ID NO:1067

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1067

```

cggtaaatga aatatgaaac aaaacggtta aaagcacatc tttgtttatt ggattatcgt      60
acacaaataa gaaaattata gatatatatc tatcgaaaaa agattatcgg attgacaaat      120
cggaatttat attataataa atcctatgca aaaaatattt tcatttattt ggagtatatt      180
tgccgatata aataggacat gagggaaata acggatattg ctgtagccga atctgggtgat      240
agtgattcaa agagcggctt gagactaaaa atgctaaaaa ctggctgaaa agtgaagcgc      300
ttttgccaac ggaataggag gaacgctcta tttcggcgtg gaaatcgcac gcgccggata      360
attggtgtac aggatattca actgacaatc agaaaattac agagctgatt gtggctcgta      420
tcaccccgcg tccggttttt ggtgcatccc cctgcaacag aaaggaaaag atattctggc      480
tgtcagagtg attccggaag acatactcct ttctactatg ttcacgatca tcaccatacg      540
cata

```

(2) INFORMATION FOR SEQ ID NO:1068

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 467 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1068

```

cgtaccgaca agaatgcaga gccggacaaa gactatatcc ggaagcatcc ttgccgatga      60
tagaggctca tccggatgag gatatgctat tctgacgag gggtacattt gtcggaatgc      120
cttcggagag atcgacaatc tccaacgggc ggcagcgact acacggcctc tctgatcgga      180
gcagcactga atgctgtgaa attcagatat ggacggatat cgacggcatg cacaacaatg      240
atcctgtgtc gtagacgtta cggcaccgct togccgtntc cattttgaag aagcgcggaa      300
ctggcacact tcggagccaa aatcctccat ccgacctgta tcagccggcc aaggagaaga      360
atatccggtg cgtttactca atacgatgga tccgatgcac ccgggacgct gatttcactg      420
gataccgaaa aggattgtat cgggccgttg ctgccaaagg tggcata                      467

```

(2) INFORMATION FOR SEQ ID NO:1069

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 381 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...381

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1069

```

ggtgctctgc ttgtcttaag tgccaacaat attggatgat actactgcaa ggacatcctc      60
ctcgtgccta gctaaatcgt tgagatgacg tttataaagg cctgacggct aaagccaagc      120
agttcgcaga gtcgagcaat aggatactag gctctggctc tgataaacgg tgaactactt      180
ggcttcggag ttttttgtat ctgaatgccg taggtttctt ctgccaactc tacaagtagc      240
ttgtagcttg atgccctagt tcttctcgct tgagacgact cttgaggaca cgatttcttt      300
acgtagctgc tctaattctt ctttttcggt caggggtagc tcactctgggg ggattgggac      360
actttcattg ggactggatg a                                     381

```

(2) INFORMATION FOR SEQ ID NO:1070

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 495 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...495

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1070

```

attggctttc agggctctcta ataggagcct tgccgaatcg accntgctca acggatgacc      60
tctttgcgct cactcgtcca tggtttatcg gcaactccgc tcctgccaga tggatgatat      120
gcctcactcc ttgcagtgtc tcgacctgat tcgccgtttg ggaacgtccc attcatattc      180
gttttcgttt cgtttgggcg cgtcaaaatg cgtatggagt aaccgtttcg cacaagttct      240
tccgaagtgc ccgtgcaacc atcccatttg cccggtaatc aaaacaacgt cttttgcata      300
aagaaaccca caaaattcaa tccgctaaga caccgaaaca aattataaaa tgggatgcac      360
aagaaagtgt acctcaatgg aaaaatacgc acaaaaagtt ttcaacaacg aagcggagtt      420
tggaatgatt ctaaataagc acctaaagaga gggggccatc ggagtaaaag acaagaaacg      480
gcttttcgag cgaat                                     495

```

(2) INFORMATION FOR SEQ ID NO:1071

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1177 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1177

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1071

cgtgcttgag	aaccactgtc	gcagcgtgga	gatgtcggag	accggtacct	tatggccggg	60
aatatttgcc	atttgtgtac	ggattttacg	gctttgacgg	agacggctta	gaaagcttgc	120
tcaaggcgct	tcatectacc	cgggtccgg	cggattcccc	cgtaagggaag	ctttggcgtg	180
tatccgggag	gtcagagtga	tgaacgcaaa	ttttacggag	gatatttggg	gcctgtgggt	240
aaggagctgc	gagattgtat	gtgaacatcc	gctcgatgga	attgtttccc	gggcttccgg	300
ctttatgtgg	gaggaggtat	aaacggagat	tcggtattcg	aagcgaatgg	gaagagacct	360
cggataaggc	ggctactctt	ttgaatgtgc	ttgaatacat	tccgtcggag	ataaggcgga	420
ctataaatga	taatgcaaga	tatggattcg	gattattcgg	ataagaaagg	cgtaagcgta	480
ttgatggatt	attcgagatg	aagggcatac	gtaaactcgt	tatgtcggcc	ggttcgcgaa	540
tgctcctctt	ctgttttctt	tctcccgga	tcccgcttcc	gagaaatagt	gattgcggat	600
gagcgttccg	ccggtttttt	cgtctctcga	ttggcttggc	ctcgggtgaa	gcccgtagga	660
ttggtttgta	cttccggtag	ggccatttga	attatgctcc	tgccgttgcc	gaggcttttt	720
acagggggat	tccttggtcg	cggtaacggc	cgaccgtccg	gccgaatgga	tcgaccagga	780
cgaggacaga	cgattcgaca	ggagggagct	atggccgggt	tcgttaagtc	gtatgcagct	840
tgagagcgga	attcgatact	tccgcctcgg	catggtatgc	catcgccgtt	tgaatgaggt	900
ggtgaacctat	gccctgatgc	cccggcgagg	accgtacaca	tcaatatgtc	gttttgcgaa	960
ccgctatacg	ggacttcttc	ggatattccg	gaaaagagcg	ggcgataacg	ttcgtgaggg	1020
aacggcaaga	ttgccggaag	aggtatggga	tatgctcgta	aagcggtttt	tggaagctcc	1080
agagtgatga	tcgtcccggt	ttttatcctc	ccgaacgaaga	cgtgtccccg	cattgcagga	1140
tatatgcaaa	tttcccatat	ggtttggttg	cgagagc			1177

(2) INFORMATION FOR SEQ ID NO:1072

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 500 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...500

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1072

cggagaaacg	tatcgaacgc	attagacgcg	aagtagaaca	ggaggagcag	cagagctgga	60
cggacagtct	tcatcacacg	actactccgg	ctatcgctc	gtatacgcg	aacatttgtg	120
gaaggtagcc	agcatctgaa	ggagcgaagc	tgcaaggcga	gacacaatcc	actcgctcgg	180
gacgaacact	ccgtacttgg	ctttgctcat	agccgtttgt	ttgctatcgt	ggttggtttt	240
taaggcatct	tatgagcgac	gtcatacgcc	tcctgccgga	cagtatcgcc	aatcaattgc	300
tgccggtgaa	gtaatccaac	gtccggcctc	ggtcgtcaag	gagtattgga	aaacgcattg	360
gatgccggcg	cttccattat	caggctggat	ggcagggagg	ccggtcgcga	attgatacgc	420
gtcacagaca	acggcaaggg	ctgagccaaa	gcgatgccc	aatggctttc	gagcgacatg	480
ccacttccaa	atagcttctt					500

(2) INFORMATION FOR SEQ ID NO:1073

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 576 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1073

gggacattcg	gtatgtatat	cccaagaaat	cgttcaagta	tgaaaaagga	aaactccgac	60
tatggatgat	ctggtggaag	ctttccttac	agcttcgtcc	agagtgcgac	caactcgggg	120
ctgggggtatg	acaagaacgc	caatcacacc	tgattacata	tgccaaaaaa	gaagagaacg	180
gtacgaacac	gctgaatacc	gctgggccaa	ttatgacaag	attcataaca	aagatttgtg	240
gagcgcacat	ttacgtatac	atcatctgcc	aatgctctct	acacacctca	agtaacatca	300
atccgaccaa	gggtctcgtg	tgctgggtcat	gggtggaata	tctccgggca	aacggatcgt	360
ttggtctgat	cgcagtggac	ccatgccaac	gggtagaaga	catcgtaatg	caagaaggca	420
gcatagaagct	ctacccgaat	cggctcaaga	atatgctgtg	attagcctgc	cgacggcagc	480
aaactgcaag	ctggtgttta	cgatatgcag	ggcagaagta	gtcgtgagc	ttcttcttcg	540
cacgaatata	ggctgaacgt	gcagcacttg	gctaag			576

(2) INFORMATION FOR SEQ ID NO:1074

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1074

```

cggcaaaagc ctgttcgaaa aggtaaccct tttgtgaaat cgagtcgaac aggggtgtata    60
tcctttgtaa tcgggaatgt cttgggttcag cgcgcctagt attggcgagc aaagcctttcg    120
aatgattatc accatcacgt tgcgtcccgc aactgactga aacgagctgt cgtgtccgctc    180
gccaaatgat gaatggattg aataacttgc ccaactcctt ttcggaggca taaaaacgct    240
tttccccaat ccctgtttgc caatggtacg aatgatgctg tagggcgctg tcagaccaa    300
gccctatggt ccactttgtc caccgacaga ttggcataac tcatgtcata ggacgccacg    360
acttgcaaaa actgcctnct cgtatacccc atcgataaat gcaatagcgg caacgagggc    420
taccaacgtg aactgtataa tatgtaggct gtctttcgct tcgcataggc gcgtaccggc    480
ttgaccgatg atatagccat accatagcag caacgaggac tatagccagc agctcatatc    540
cagtaattca ggagaagatg ccatatcagt cctccgcctt catggctgat tcagagaaaa    600
ccgtcgagga tgttcgtttc aagggtgatg gatagtaata caatcggcca gacctgccgc    660
cagcccaaaa gcatttggca cgaaaaggct cagtcgggtc ggattcgata agatcgcttg    720
gcacgaaaac tgaacgcaga aagctcaaca gaataaaaag ggcattcaaa tacaaaacgg    780
aagcgtgtcg aacctaaagg cctccatcca tgcacgccat acctgctcgg cagcatgtcg    840
gcaaaaaagc gatagttaga gaggtagaac agtccacggg cataccgaaa aggaaataag    900
ccaatgccat acgataggca aaagcccacc actgttcggt cgtatcgtcc gcttacaat    960
attcatatct ctttgtgtgt ttctattcgg attggaggca gggagcgagg gtaatgaatg   1020
atttcgggtc atatcccccc aattgagcct atttcatgat tcggtgcacg atgtatccgt   1080
tgcaccggca ttggatctga tgtagtctgc ccaaatcctc tgcgtaggat acggagaagc   1140
ttgtccgttt gtattcgctt gatcagggtg ccaaatcctc tgcgtaggat acggagaagc   1200
ctccgccgac atctatcaat tcacggcttc cttgaatttc tcatatcgtg gtccgaaaat   1260
aaccgggtata ccatgactgc ggccctcggg gtattgtgaa tgcctttgcc gaatcctcct   1320
ccgtaaaaag tacttgaccg tagcgataaa tggaggatag gagaccgaag cttctacaat   1380
cagacaatcc tgccgggcaa tatcgctttc cgtagcttcc gaagtcgtat gaaaggccgt   1440
cgtatatgcg atatgatctg aagc

```

(2) INFORMATION FOR SEQ ID NO:1075

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 398 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...398

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1075

```

cgtccatcat gccaaagagc gcagaaacaa cgatacagaa gcccgtaag agagcaacat    60
attggggaggt gaagatttta gctttttcat ttgttcttcc tccaaaatgt ttaggtttca    120
tataagtgtt gatcagagggt gtcatacgtt cataattagg atggcgaatg acattccttc    180
cggataagcc ccgaattacg gatcacgacg gtcagcaaac cgatcagaca gccgtaaagg    240
atctgccgga cttggtcatc ggcgaagtca catagtcctg ggccatgaag atggtccgag    300

```


catcataccg cccgagaaca ggtggaacca cggagtggcc gggaggatgt tggggctggc 360
 caagtgcaga attacctgcc cagtagatc acgatgct 398

(2) INFORMATION FOR SEQ ID NO:1076

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 285 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...285

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1076

cggcgagtat gcattaaaag cagctattaa aatcggcttg aatatccacg ttttcatcgt 60
 tctgaagtcg atgagcagat ccgatccgct ttcgaatagc cgtaaagtat tggtcgaaac 120
 acgatgtggg aataaccaca cgaatcacct aaaacaagca ttagaggcct atgccccaaa 180
 tccgacttca ttcaagcgga ggatcaagaa atacgagatt ttattgcctg ttttgagaaa 240
 cgactgctga atccaaacac caagcagcct acaactactt gaccc 285

(2) INFORMATION FOR SEQ ID NO:1077

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 435 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...435

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1077

cgctaaaaat cccgtaaccg aaaactccgg ttacgggatt ttatttggtt ttagaaagag 60
 gtgggacttt caagtgtagg ttccagtagc aaatacctga gtgaccggcc gtaggtgcgg 120
 atctcaatgc gcttaccgaa catgacagat cgccatcgag gtgcattacg ccctctgtct 180
 cacgctcaat gatcagtttt cggccttata ggtgtccaga ttggagttgc tggtgatacg 240
 cttggaaaga gttgtaaagc caattgtgga gcttccaatg gattgaaagg acggtaataa 300

```

ctacatccat tttaccatcc tccaaatccg ctaatggagc gattaaggcg ttattgccat 360
actggggcgc attggcacca agtgacgagg aagctttctc ctcaaaggat ttgccgtcta 420
tcggtcaggt ttgga 435

```

(2) INFORMATION FOR SEQ ID NO:1078

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 813 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...813

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1078

```

gggcaacggt catgcagccc aaggagctgc cacaggcaga cggaagagtc naataagaga 60
gaagcagtc ttagctcag ttgggttagag cgcttacatg ataatgtaga ggtcgggcagt 120
tcaactctgc ctgggactac gggggatagc tcagctggct agagcacctg ctttgcaagc 180
aggggggtcat cgggttcaatc cgatattctc cacgaaagaa aacaggcgat cattgacata 240
ttggagaaaa tcaaataaag aatttaagta gagcacaaca agcttaagta taccocggcg 300
gcaattgatt gccgggcgaa caaaagtaag taagggcaga cggggatgcc taggctctcg 360
gaggcgaaga aggacgtgat aagctgcgaa aactgcggga atcggcacat acgaattgat 420
ccgcagatat ccgaatgggg caccocgtcag gccaaaggcct gacacatgaa ttgatttcat 480
gagcgaacgc gggaaactgaa acatctcatt acccgttagga gaagaaaaca aaagtgattc 540
ctcagtagtg gcgagcgaac ggggattagc ccaaaccggc tttgtttcgc aaagtcgggg 600
taataggact tcgacaaaag tttaatgata gatatagaga acctactgga aagtatggcc 660
gaagagcatg aaagctgcgt atccgaatat cgaacaatag acgacggagc acctgagtag 720
cgcgggacac gagactcctg tgtgaattgg cggggcccat cccgtaaggc taaatactcc 780
cgaggaccgg tagtgaacca gtaccgtgag gga 813

```

(2) INFORMATION FOR SEQ ID NO:1079

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 469 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...469

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1079

```

cggattcggc ggatttcaat gcattgggct ttgcagacac cacttttgcg cagcttttgt      60
ccttgagggt catgtgaaaa gcgatttggc tcagacactc ggttcgaagc ctcggtacgc      120
gattgttaca tgcagctcga acgctataag taataccgga gcgaatagat atattagccg      180
ataccgatcc cgatagatcc gtctggatct cgtgtcgggc gacttgaaaa tggctctcag      240
agtggagaag gcatagatgc cgttacggtc gtgtcccaat ctctcgggaa gaagtagaga      300
tattccgcaa cgactctatt cagcgtctgc gactctcttc gattttcaag agctgcctca      360
tgcgaccttt accttgcaag cccgatcgct acatccgctc cagcacttga tgggaagtaa      420
acggtatgaa atacaactcc accgtggcaa gctggacagt ttcgccga                      469

```

(2) INFORMATION FOR SEQ ID NO:1080

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1080

```

aaatacgaat tgatactccg gtacgtagtc ttttcggctg attgtcgctg ggcacatctg      60
gcatacctctt tcatcagacg actgaatctc tctgcgagtc gcccggttta attgaagtcg      120
taaccgtata tatccagatt tactgtgggt gtccgcccac accgccaccg cttccgcccc      180
gagtaacctt ataacttgaa tctcaggata atcatccagc atggtaacgta tctggtcggc      240
cacttgttca tggagcggtt tctctcgttg cgtccggtaa gaccgatatg gaaatgatga      300
tattcgtagc attgtcctgc atggcggcaa acatgctgga agctcggcct gaccgacact      360
aaagctcggt ctgtcgatct ccggtatttc ttctcccaac tgtcgatcat acgaagagca      420
aaggctcggt gcagattgac tccgtgcccc ccgcatattc tgctgaatt ggatatagcc      480
attgtcggac gaggggaagaa ttcggtttga c                                     511

```

(2) INFORMATION FOR SEQ ID NO:1081

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 375 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...375

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1081

```

cagacgaaga atttcctgct tcataccgct tcgctccaaa gccgatgctt tccatacaag      60
agtcgtaact cttccagacg ggtagccgcc tgttccaatt tcttttccga gccatcacat      120
cctgatagag cgacttggtt tcgctgcttg gaagtcgctc cagcgcgtat agatacgcat      180
ccccgcata gggaaaaaat ctgacgttcg gaagccttct tctctgcata ggtgcggttg      240
tcccgccga tgcgacaga cgactgtagt ctgctcaag ggtcttgctt cgctttatgc      300
tcttgaggga tgcatacgct cttttgaggg ccatatcgct agtagccaca ggcgccttc      360
ttcattggat accga                                     375

```

(2) INFORMATION FOR SEQ ID NO:1082

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1018 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1082

```

gttcgccttc cggcagattc tttgtggttg agcaggcacc tgtcagtaga caaaaaggat      60
ggggaggaat acttgccgta atactttcat cggattctat cgctttgtcg gaatgatatc      120
cgtctgcacg gataccggct cctcttcggt ttgagagctt ctgctttcga cactatgggt      180
ttcgtctctt tcttctgccg aaacggaaca gatcggacaa gcgcgccaac tttcgactga      240
tcacaagccg ataccggtct ccgttatctc tccttcgagc agattttcat tgttttcttg      300
tggaagagtt tgaggtgctg tgctcctgat ttgtccagac ggtctccacg gatacgttgt      360
ccaccaaagt cctttcctta ttggtcggca catggagccg gaagcgacag atcctccgat      420
cagcacacgg atcctgttgt ctagaactgt ttgctgaagc tgtacgtgaa gtccgtatat      480
gtaccgcccg atcggtgcca tcgtgacttt ccataccgat gttcagtcg gagccatcga      540
taccttgccc aaagcactgt tgatcattcc ctgagcatag ctgctgaggc attgtcaaag      600
ttgaacccac tcgattgcga agccaaataa gagcctgtgc caagagtcg atggcctgct      660
tggaacgctc ttccggcccc atacttgca ttgggttttg atagagaagt cctccggtgc      720
ttcgacatca aacacaaatc catattcttg agcgtttctt tgacgatgat accaaccatcg      780
aatcacctt tctcgacgct ttgctaccgc tctccatcac atcggcacgt actgctgcac      840
tgctttgaag ttgacgtaag gctcttgctg attgccgctc catgtacgta gctcgatggg      900
tcgatagtga agacctgctt acccacgacg ggagcgtata gcgcatggtg ccgccaccac      960
tcatactgta ccgtccggtc aactcatttc cccgtaagcc ggcatagtga aagtcagt      1018

```

(2) INFORMATION FOR SEQ ID NO:1083

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1083

```

cgcaggacga agtcgttctg attcagcttc catgccagga agagggctga gtcaccttcg      60
caaattcggc cggttgaggt cgcaacggtc ctatcacgcg cacgaatgcg agccttttat      120
atccggagct atcagtatgg tcagagcaaa agccccaaca tggcggcata gaagacggga      180
gccagcgact cgaaaaatcc gtctccatga gcagaacatc aaagcctatc accaccgcga      240
gaccgtccac aggagctgca tcatcggacg accgcccata atgaaaaggt gggaatgtcg      300
aagtcgtaac ttgctccgca gacagcaaac caaccggcca cgagagcagc agatacagaa      360
tgatgggtaa accaatcgat ccgtccctta tatcgncttc gatctctctt aaaagacatt      420
gctgtagtga attgcagtgt tgacatcttc gtggccacgg ctctcncctt cggagacagg      480
ttgccttcgc gagataatac ttcatca                                     507

```

(2) INFORMATION FOR SEQ ID NO:1084

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1100 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1100

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1084

```

atatacctgct gagtggatt ggtgatattc accagggtat tgcttcgtgc cggcagcttt      60
ggcatcgctt gcagcttttg ctatctccgt ttcgctaaac catcgagcga gtctttgctc      120
cctacgatta ccgctgcggc attggtgctg cgatcagctt gttgccgaat tcggtcgtca      180
gcgaagcctc ttccttttca gttccatgag cttggccttg tcctcggcac tcagattggc      240
accggacgga caaaggcatc gtaatactct tggatcaact tttgtccctc gggtcgatgg      300
cggattggtc actttcgtaa acggctttta cgcgttgga aagttgtcgt taaggtagat      360

```

ggcatcgctg	tgtgcagcca	aaaggggcga	tatttttctt	cgattttctg	tagttcatcg	420
ttcgtattgg	ctcccgtag	accgaagaag	acattggaaa	cacgtttgag	tgtctgtccc	480
gaacgttcca	ggctacgagc	gtattctcga	aagtgggagc	ttcggagttg	ttcacgatca	540
atcgatctcg	gccaactgct	gtcccatgcc	ggcttcgaaa	gcaggcagaa	gtgttcgggt	600
ttgattttgt	cgaattcggg	tgtttccatg	aagagagact	cgattgcagc	agaggattgt	660
cggagaggtt	ggcatctcct	ttacgggtgcc	gttacatgct	gtgagcattg	ccataatact	720
gattgcaaaa	acaaattttt	actcattgat	ggaggtttgt	gagatgaaac	attagtaatt	780
ccctagtcgg	gtgtagcctc	aatacttccg	gaatgagcct	gatgacggca	tcccgatacc	840
ggctttgaga	agaaccggta	tgtctgcctg	ataggctgcg	agaattcatc	ttcccgtcgg	900
agtgaacttc	aatcccgag	ataatggctg	acgcacaggg	gatctgcccc	atagccaaga	960
cgtatgcccg	gcattgagcc	atcggtgaaa	gtcgagagat	cgtcggattc	cagtatggtg	1020
cgatagtaac	gccgcacgtt	cgtactgccg	gtgaggaaga	gcaccagcga	tggacgacgc	1080
cttgagcatg	tcacactgac					1100

(2) INFORMATION FOR SEQ ID NO:1085

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1085

cggctgtctg	ctttttggat	ggagaattta	ccctgaaaac	aatccgcata	aatcggaaga	60
gattctactc	gaaccggcca	accccgacta	tcctaccaac	atgtatcggc	agacaacgat	120
ttcgtcatct	gggggatcgt	aacctatgta	ttcataaaat	aagaagatga	tcggcctatg	180
tatgccctct	tagactcaac	aacttcttcg	tcagttgcga	aagggtgttc	gaccctcgc	240
tccgaacagg	cgggtcggtg	tcctctccaa	taacgatggt	tgtatcatcg	ctcgagcaat	300
gaagccaaa	cattggggat	agggatggga	caacctttct	tcaggtgcag	gacttgattc	360
gccggcacaa	tgtggcattc	ttcagctcga	actcattctc	tacggcgata	tgtcccgacg	420
aatcatgtcg	cttgatcgg	acttg				445

(2) INFORMATION FOR SEQ ID NO:1086

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1684 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1684

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1086

```

aattgtgtgc aatttccgat aagtatgcct acccaaggga ggaataccac gtcgatgtcc      60
tgcgagttct ggcaggattg atggtaatcg gcatccatct tcgggagaat acgttcctga      120
aggagtggct gagggtgcaa actttaaacg cgggtctatgc tgggaggcgg tcgtgcagcc      180
ggccgttcct atattctcat taccagcggg gcttttgtct tgggacgcaa atgagacgtg      240
gggagtttct atcggaacg aataccgcga ctgctgttac tactcgcttt ttggttccgt      300
tctattggct gtggtgtggt ctcaaggcgg atgatatagg ttctatcttg ccggcttttg      360
gcagggacgc tcattcgttc atctgtggtg tgggtgatgc tgctgggact ttatgcagtc      420
gttcctctgc tcaacgaaat attcgcaggt gcgaagccga tggagagaag gctgctcgta      480
aacgactttg actctctcta ccatattgct actgctgggg atattgtcca acacctacgt      540
tacatactcg gttacaaccg ctttttccct tttctttggc cggattattg ggatatttcc      600
ttgtgggtta taccctgaag agccatgctc cgcagcgtct ttaccggctc tttccttgta      660
cggactctct acgatttctc ttttctcgca agtcggtagc ctttcgagca cggcgaaggg      720
ctatacttct accgtatctc tctcctttga ttgttctttc tgctatcagt ctcttcgcgt      780
tcttgtttct tggggaggat gtggaggaaa attggcgcgg atcgggaaaa tgcgggggat      840
attttaggaa tctacttagt acacatcgct gtgctgaacg tgtgacaaaa atacttgtag      900
tgaccacccc cagcctgatg caatgcgcac gctcaacata ccgatccgtg taggattggg      960
tttcttcggt tcttggggag tgtgcggctg atgaagcggg tgccgatatg ccgctatttg     1020
gtctagatcg tccgataccg gttctattgt acccgtttct tcgacctctc tatatcgtcg     1080
cccgtttcag gacagacggc catccccttg tcatcgaaag acaagcgtga ccggcgcggc     1140
ttacccaacc gatccggcga gcaggattgc ccactacaag gcatagggcg gtacatccct     1200
aatcaccacg gttcctgcac ctacctggca taagccccta tcgtaatacc acaaagaata     1260
gtggcattgg ctccatggag acgccttcgt gcaaatgagt ggggcgggat tcggattttc     1320
tttaataaag gcgcgaggat tgatcacgtt ggtaaataca caactcggtc cgggaatacg     1380
taatcttcgc atatgacacc actatacaga gaaacgttgt ttgcacctta cagcctcgcc     1440
ccagtcgtac ctccggcatt ataacgacat ctgcccgatg ttgcaattct ctccgacctc     1500
ggctccgcac atcaagtga gaaagtgccat acgcgtgtac cctgaccaag cacacaaccg     1560
tcttctacat cgctgtggga tggatcataa agacctgcta tcaattggcg atcaactttc     1620
ggcacgttct accgatgaac ggaatgaggc attcatctcc atctcgtcgt cacacagcga     1680
cagc

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(2) INFORMATION FOR SEQ ID NO:1087

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 856 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...856

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1087

tatgaaacct	ctgcattggc	gcgaaatgaa	agaggctgat	cccaatcgat	aacccttata	60
gatgctcgtc	ccagacaggc	ctacgaagta	gagcatatcc	gggagcaatc	agcaatgccg	120
gtggaggaaa	taagggcacg	catagggaaa	ttcctcacga	caaaccgata	tatgtatat	180
gcgccgtggg	gatgaggggt	atttcgcctc	gaacatcctg	agacaatgtg	gtttctcaaa	240
tgtgcaaacc	tgatcgggtg	ctatcgcttg	tattctacca	taacggcaga	ctacgttctg	300
ccggccaacc	tgccaccgcc	caacttctctg	caaaggatag	tcctcttccc	atacacaggt	360
accggagggtg	gatgcctgtg	gcattgtcctg	tcggggccga	tcctcaagct	caaacaatcc	420
attgaccaaa	tagctgtagg	aagcagctct	gcattcctggc	taccgacccc	ggatttgctc	480
gtgatgctca	gcctgggtgcg	acacgaccgg	acacaatctg	atccggcagg	agaccataag	540
ggcaaataca	aagtgaacct	cgaaaagact	gcttgcaagg	aggaaggccc	tgctgaacg	600
agactccatc	caaaggcaag	acattcattc	tcttcaggat	gatctggaca	aggctttggc	660
cacattcgta	ttggccaacg	gagcagagcg	atgggacagc	cggtgactat	attctttact	720
ttctgggggt	tgaatccatc	aaaaagcctc	acgccgtcaa	agcgaagaaa	gacatttggg	780
gcaaatgttc	ggtatgatgc	ttccgaagaa	cagcaaaggg	ttaggactgt	ccaaatgaac	840
atgttcgggt	tgggag					856

(2) INFORMATION FOR SEQ ID NO:1088

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 588 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1088

aagcaatgga	aatcattcgc	aagaaggac	aagcagtagt	tgcaagcgtc	ggacagagaa	60
gcggcggaag	gttgcgtagt	cttcagccga	caaagacgat	ttgccgctat	cgtagctctc	120
aagtgcgaga	cttgatttcg	tggcaaaaat	gccgaattta	tcgagcttac	acaaaatata	180
ctcaataactt	gcttatgaca	agaagccggc	caacaaagaa	gagctgctcg	cccttcctct	240
ggctgcggac	gcaccatagc	cgaccacatt	accgatcgta	tcgggtgtgac	gggtagaaga	300
tgggaattggg	tgcttacgaa	tacatcagcg	gtgcctccag	cattcttata	tccacccggg	360
caacaagctg	gctaccgtgg	ctgcattcaa	cgagctatcg	agcaccagat	ggctcgtgac	420
atagccatgc	agattgcagc	ttgaaccccg	tggcagtagt	gcccgcagcag	gtcgatcagc	480
acatcatcga	caggaattgc	agatcgctcg	cgaaaagggt	ctcgaagccg	gcaagccggg	540
gaatctgctg	gatnctgata	gctcaagggt	gctttgcaga	atttctac		588

(2) INFORMATION FOR SEQ ID NO:1089

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 437 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...437

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1089

ggttttgaga atcgtatatatt cgtgtggtac gtctgtcagt ttcttttagcg aagtcctgta	60
gcatcgggtgc cttctccgaa caaatctgtc ggaggctctg tgccgtgtacc atgccggcaa	120
acaggctctgt cgcaggggca tcggtagtgt actctccaac cgtttcagca aagtgcgaaa	180
ttccagtgc gcaaagattc acgaacggct gccatatcgg gcgaagtacg tcgataggct	240
tcggatcgaa gacaatagga gcatccgtgc ggatagtggc caagtagcgc gagagcgcgt	300
ttgctcttcc ccttcctgaa tttcttggc cacagctcct ttcattcatc ttggtgggcg	360
tatatgccgt ctatgcttcc atactcggcc agagcttctc agctgttttc gctccaatgc	420
ctttacatcc gggata	437

(2) INFORMATION FOR SEQ ID NO:1090

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 536 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...536

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1090

ctgatttgga gaggtactcg gatcatatag acaacaaggc aagccactgg ccaagatgct	60
caatgactat taccagaagt tcgatgcaca gaagggaagc agttcgtttt ctctgattta	120
gggacttata agcccgagg agaattcatg tctattcgga gatcaaactg aagttggtag	180
aagactatca catccctcgc atgaagtacg ctttatccaa gaggcaaga acgagaaagc	240
caagaagcaa tggtagacgc catgaaccgt ggcgacatcc gcatcatctt cggctactt	300
cgatgttggg aaccggggtg tcaatgccca gcaacgtgcc cgtgctatcc accaccttga	360
tacacctttg gcgtccttcg gatttgagc aagcaacggg cgttgccgtg ccgtaagggc	420
aatatgattg ccaaggagtt tcggataaca agtncgatgt gattatctat gccgtagaac	480
gctctctgga agtataagtt caatttgctt cacacaagca agttgttcat caatca	536

(2) INFORMATION FOR SEQ ID NO:1091

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 536 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...536

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1091

ctttctctct	tgccgaagag	tatttcgagc	tgtgaggtat	cctcttcacg	gagacagcga	60
ggatgtgata	gccgaatat	aggatcatat	cagaggtagg	atctcgactt	taccgttgtg	120
ccagaccgtg	gtaatgacga	aagggcggtg	agcaggagt	ctacttcgcg	aacgcttttg	180
ccatccaaag	caggatgcag	atttcatact	cggagaagaa	agctttggga	gcctcggaat	240
cgtctgttcc	tcgaccttgg	gcatacatac	tttcagcagg	gccaaagcaa	taatacaccc	300
acaacgcccc	aaggataggt	aacggcacag	gccagacctt	tttgctatt	tcggccgtgg	360
catcgggatt	gatctgatgg	agggtcgttt	ggctgcaccc	aaagcagggg	tattggtagt	420
ggcaccggcc	acgataccca	tagattgggc	atggaaatgc	caaggatata	ataaaggagg	480
atgcacagga	aaatgtgagt	aggactaatc	ccaaggagat	aagatctggc	aatgcc	536

(2) INFORMATION FOR SEQ ID NO:1092

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 538 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1092

ctgtgctaca	gcagcagtat	ggcctgatca	ccctgcagat	gggcttgggt	cggtggcata	60
tccggtcaga	atggatgtag	cagatctggg	cgatcatatc	tgacgatatt	cacactcagc	120
tacttagctg	cctattatcc	tgtccacact	tcataaatcg	cagactgaaa	aatagctgac	180
gaaaggcctc	attcgaaatg	aggaccatgt	gcaaaaagctt	tggaataagg	tgtttgcgta	240
tatcaagttc	gtatctttgt	agcaaaggag	tgccggctat	gccgattaga	tgtagcaaaa	300
cgaactcgga	agaaaggtag	cacgatgaca	gacagtatag	ttatatccct	acctacaatg	360
agcgggagaa	cgtggccaaa	atgatagaaa	cgtcttcgct	ctacccaaaa	ctttcgatat	420
tctgataatc	gacgatggat	ccccgacgga	acggctgcga	tcgtcaaaga	gaaacaggcc	480
atctatcccc	aagacttcat	ctggctcgaga	gacaaggcaa	attgggtctg	ggtacggc	538

(2) INFORMATION FOR SEQ ID NO:1093

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 859 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...859

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1093

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aatatgacac tcgaacggct gcaaagtgtg gcagaaacgg gtgttgattc atcagcatag      60
gcgctttgac tcatagcggt acggccatgg acatcagctg aatttctctc ttactcaatt      120
aagctttaag ttggtttttg tatgcaacaa aggatattct taaggagata gaacttctca      180
agaaagaacg gaatgcatta ttttggcgca ctactatgca cgccctgagg tgcaggacat      240
tgccgttata tcggcgattc tcttggtctg tcccgtcagg ctgccgatac ggagcggata      300
cgatactctt ttgcggagtc cacttcatgg ccgaaacggc ttcattattt cgccgcagaa      360
gactatcctc actcccacga aatacgccgg ttttctttgg ccgaagggtgc ctctgctgaa      420
ggcttgcgtc ggtggaagga gagaaccggg gatggactca tcgttagcta tgtcaatacg      480
acctgccgag taaaggcttg gacggactac ttgcttgaca agcagcaatg cactcaagga      540
gtggagagct tgccctcgaga cagaaaaatt ctctttggcc cggatagaac ottggagctt      600
atatctcgcg aaagacagga cgggagatgg aactttgaat gcttcgtgtt tcgtacatga      660
gcgaattacg gaagaatcca tcttagggct atggagctgt atcccgatgc tgatattctc      720
attcatccgg agagcagggc tctcattcgc cagcagtgct gagtagcgat cgctgcttta      780
tgtatccacg gccggatttc ttaatcatgc tcgggagtcc gacaaaaaaa tggtgttatt      840
gcgacagagc cggagacgc

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(2) INFORMATION FOR SEQ ID NO:1094

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 871 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...871

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1094

cggccatgac	gaaatggg	cg	gctgcagtgg	ccaatcatcg	gctcgggtctt	tgaccgatgc	60
ccagaaagac	ggcatcgtga	aagcctgcaa	ggaaatcccc	aaggcaagca	ccacgagcat		120
ttccccgtgg	atatgatcca	aggcggtcag	gaacgaccac	gaatatgaac	gccaacgagg		180
tgatttgcaa	ccgtgcttgc	agatcatggg	acacgaggga	ggcgaatttg	cccacctctc		240
ccccatgata	acgtgaactg	ctcgcagagc	accaacgatg	cttatccgac	agcttccacc		300
tcggccttta	cgctacatat	ctgaagttcc	gcccccatct	tctgatctca	tcgagtcgct		360
gcgtgccaa	agccgcgaat	ttgcccatgt	accaagatgg	gacgtactca	gctcgaagat		420
gctgtgccta	tgtctctggg	aagacgttcg	gcggatttgc	ttccatcttg	caggatgaaa		480
tcaaaaatct	gactttgccg	ccgaagagtt	cctgaccgtg	aatatgggtg	ctacggctac		540
ggcacgggta	tctgcgcccc	gccgaactat	gccgaatact	gcatagagct	cttcgtgaag		600
tcaccggctg	ggacattcgt	ctcagtgccg	atctgggtgg	gcaacgagcg	acacttccgt		660
gatggtagga	tattcgtctg	ccttgcccgt	atctgtgtga	aggatgaaca	gatttgcaac		720
gacctgcgtc	tccttccagc	ggtcctcgtg	cggtttgac	gaattcaatc	tgccgtccat		780
gcagcgggtt	cgtccatcat	gccgggtaag	gtgaatcctg	tgattccgga	agtatgaatc		840
agatctgcta	taaggatgat	ggcaacgacc	t				871

(2) INFORMATION FOR SEQ ID NO:1095

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 597 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...597

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1095

tcgcgggtag	ccttgttcgt	tttgacatcg	ggaaagctga	cggcataaaa	gccgtttttac	60
cgtcggggaga	caaggccatt	tcgctcacc	gcgacaggtc	atgaatagtt	ccggcggtcaa	120
atgctctccg	gtattcgttc	cggctgaggg	gtcatagcag	ccgaaccaat	gatgcttgca	180
gccatcatcg	aaaagatttt	ttgttcattg	tggtgattta	ttactgtatt	gcgtttttatt	240
gtggacgaaa	atacgaaaga	aactcgttat	cccctctttt	aacgagagtt	gaattatagg	300
agaacaaggt	ttgtcggata	aaagtgtacc	gcccctgaat	gaagcatcga	tgcaatcgct	360
atcgggtcga	taggcaagac	tcaatatgct	atgcttctgg	catacgaata	tcttcacgta	420
aatccttcat	tacagtacgt	ttgaagaata	ttcatttttt	taccggacag	caataaaaag	480
aatggatcg	tctcagccgg	aaaaagtgtt	tctgcagtac	agaaaaagtt	gaaagctatc	540
tgcaatcttt	atcaaaggtt	tcggatatat	aaacgaagct	ttcggatagt	atccaa	597

(2) INFORMATION FOR SEQ ID NO:1096

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 505 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...505

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1096

```

acattggcta agaaggaaag gctctgctct cctcctgca agctgctcgc gcaggagaaa      60
tgcgacgttg tacgaccggt ttttcctcac gttcaggcta gaggaggctt tctcgatgaa      120
ggattggact gcatctctcc ttaaccgcca atgagagaaa gcgggatgaa atagtcgtga      180
ctgagccgga tatcgatgat acggcttcaa gcggtgtacc acctaatttg gtcagattct      240
tgcggtctgc tcttcacga acccggtgtg caggctcgtg agcagctgtt atcgagcctt      300
tgcagatggg tagcagtcgg cctctatcga gagagagaag ccgccggaac atccgtcaag      360
gtaagagata cgggaatgag gcgaacggcc gattgtcttg cgagagagct ttctcgaaac      420
ggatgtcgta attgcggaat agtttgttcc cgatacgatg cccgcaggat tgtcacttgn      480
atgctgncgn gggtaaaacc acatt                                           505

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(2) INFORMATION FOR SEQ ID NO:1097

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 458 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...458

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1097

```

aacgaatacg gcatcttact cccatatccc aatcgatatca gaaccgtaga tattcgtctt      60
cgatgcgag tatcttgcc atttttcccg aaaggcccg acctcattgg gctggttcat      120
ataagcatgc gaaataccca tacctgtgcc ttgagcagga tatgttccaa tgctctcccc      180
aattttatcc attgcacacc gtattgttcg aagtggtaaa caaaacaaaa tgagaagagg      240
aggcttcttt cttctatcat ttctattctg tgacttctca ttaatgangt cggataaatg      300
gcctttgcaa tgaagcgaga cagattgggt gcaccgaata cggatagctg agtccgtctc      360
tcgttgcatc ttgatgcttc ttgntatagc gctccattgc tgcaattctt ctttgaactt      420
ttgctccatt gtatgctgtg ctacaaacct ttccgaat                             458

```

(2) INFORMATION FOR SEQ ID NO:1098

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 936 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...936
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1098

ctgccgtggt	cataatgtcc	atcgacaaga	tgaatggtga	taccgctttt	ttttcccttg	60
cagcaaggac	ggcttcgtgt	acgtgatgtc	cgtacattct	tttccgccga	acttgggcaa	120
taatgcagga	tggatattga	ccgaatctgt	cggggaagga	ttccaagtag	ggtgcggtta	180
tataacacat	atagccgcca	gcacgatcag	gtctatccct	aattctttca	agagggcaat	240
gggctcgatc	cttcgagcat	ctcttgggta	gtaaacgaat	aagccggtat	tttcgccgat	300
gggcacgtgc	cataactcct	gcacgagagt	gattgctgag	gatacagcca	agcttgccga	360
acctcttttg	gcaaagaaat	gacacagatt	tttgcatctg	agccattacc	ggaagctaaa	420
accgctactt	ttctcatttt	attactatct	ttgctgcaca	caaagagtgt	gattgtgcag	480
attttctggc	ctgataatgg	actaacacgg	tattttctgt	gctaaatccg	ctaaacagcc	540
taaatgaagc	acaaatataa	gtaagaagat	tattagtaat	aaccatttaa	agaacaagac	600
tatgtctgaa	gtagaaaaaa	aagtgatcga	cctcgtattg	acaaattgaa	tgtagaagct	660
tctgaagtaa	cgcgtagaagc	cagttttcaa	atgaccctcg	gagccagact	ctcttgatac	720
agttgagttg	atgataatct	cgaaaaggaa	ttcaacatgt	ctatccctga	cgaccaagca	780
cagggatcaa	gactgtcggc	gacgctatcg	actatatcga	aaaaaacctg	aagaaaatac	840
tccgatggaa	ctgaaaagag	tagtagtaac	agggttagga	gcattactcc	gcttggcaac	900
tctgctcccg	aaacgtggga	aagcttagtg	gaggca			936

(2) INFORMATION FOR SEQ ID NO:1099

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 452 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...452
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1099

```

gccataacctg tccgattggt gcggtgttag tccaaacgct gaatacaact ccgcttgga      60
tgtagtactt ggccgtagtc aatttgatca cgccgttgat ggtagctgac gagtcgtttg      120
tacaagccct ttgccatagc tcttttgcgc atcagtagac ccctgtccat atcctgcagt      180
gctccggcta caatctcgag gaagatgccg attgtccatc gatcaggact actatcgga      240
gtttctgtcg atcggttcag tcaatgtgcg aaatacggac gccgactntg caatcgacct      300
ttggtcgta ccacctcttt gcccttaggg acgaacagat tgatatctcg atagcagcct      360
gcatcagtc gccaccattg ccttcttaaa tcaaaatgag accttctgct ccttgtttgt      420
nacgaagatc caacaaggcc ggcgcacctc tt                                     452

```

(2) INFORMATION FOR SEQ ID NO:1100

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 349 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...349

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1100

```

cgaaatccga gcttttcgtaa caaaacaaaa aaaccttgca gaagttagac tgcaagggtt      60
ttatttgga tttgatccgg aaaggcacct tttgagacgt tatacaataa cccttcccc      120
ctcatattga tcaagacaga taaatgcttg atttgacgaa gaaaggagag cttcatgcga      180
tctctctgca aacctcagta atctgaaaaa cacttaagaa tcaactctgc ggcaaaagac      240
ttcaagaaag tcctataaaa tagttgcaaa tagctgatag ttagcgcatt gacggagcag      300
aatcagctga caattgcgtc ctgcacgtg caggaagcca ggacaactg                    349

```

(2) INFORMATION FOR SEQ ID NO:1101

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 389 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...389

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1101

tcagacgctg	ttcacgagag	agttcgtacc	gaccgatgag	cagattgcgc	gggcggaatc	60
tgcatcgagg	acttcggcca	gcacattttc	gaacggaggt	gggggcgttt	ggccgcttcg	120
gctctgaggg	cttcggtgtc	gaggccgctt	tgttttcgat	gatgcaggcg	aaggtctcct	180
gccggcgccg	gtagcttgcc	acgtgccgaa	gagggtgccg	aggaggagaa	gggatttgat	240
gaagaataga	tgagtcgggc	gactaccggt	accaacaggc	cgttgagagac	ccaaacatga	300
cgttgacaaa	ggaagttcat	tgggaaagta	ttgttagtga	agtgttcggg	cgtgggatga	360
aggatcccg	tcccgatccg	atgattatt				389

(2) INFORMATION FOR SEQ ID NO:1102

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1277 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1277

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1102

tcccctggat	gccatcttgt	atgctaaaga	aacagcttca	tgcatcgaga	tgcatctgca	60
atcccgagaga	tcttgccatc	gaagaatttg	tggagttttc	attatctatg	cccaaaaaga	120
tcagtcacac	gactttagac	aataccaatt	ctctatatct	gtatagtcac	tgctttgtc	180
tgtccccccg	agaatgggat	tactctagtt	ttcatgctct	ctagagcata	ccaggtagaa	240
tttacttcgt	agctttggag	tcattgatat	aatcgacacc	ctttacgcga	gcaacttttc	300
cagtcgatgc	ggtacattct	tgaaatcctg	caaggcttct	cgatagcctc	attcttaata	360
tccatagctt	tggcagcaat	ggcagttgcc	atgcattgtg	cctgttggtg	atgccggaca	420
gagctaaaag	ttcctcatcc	aaacaaaagg	tgaattaaga	ttcatgacaa	ccaattcgtt	480
cttttcattg	tccaagcagt	tgtattatcc	gttcgagctt	ccattgcgaa	cggtagaagc	540
gggctacagg	aggatgttcg	gctacccatc	ggctgataaa	aggatcatct	cccagtagat	600
gaagcaatcc	tcgggttgct	gattccgagt	gattctcttt	tcgcttctgc	ataaagctcg	660
aatcggtgat	cgtatcgatc	taaatgtccg	gtgtaatat	gagcagaatg	gccacattag	720
ccctgaagtc	gtacagttgt	ccagttgaaa	actgctcaac	tctattacat	aataaggatg	780
aggacgtaag	cgacctgtct	ggccagacta	aaaccgacat	tgcttgccaa	accacatcca	840
aaccggcctt	acagagcggt	tgatacaacc	acatggttgt	tgtgtcttgc	cattactacc	900
cgtgatgcac	accataaatg	catcggtgta	agtcggcgca	actctatttc	cgaaacgata	960
cctatctctt	tggcaacagc	tgtcgaataa	taggagcagt	gtcgggaata	cccgggcttt	1020
tgataatttt	tttgcttcga	ggattatcgc	ctctgtgtgc	ctaccttctt	cgtacggttg	1080
gcataatcgt	taagttcttc	cttgattttc	ggggctatct	ttccgtatcg	gatacaaaata	1140
catgcagacc	tttggcttga	gccaaaagag	ctgctctact	ccgctttctc	ctgctccgag	1200
aacaactata	tcatatttca	atcgcccatc	ttcccagatc	gntattttatt	cgttatcgca	1260
tcttgagtgt	tgcttng					1277

(2) INFORMATION FOR SEQ ID NO:1103

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 628 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...628

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1103

acttgatgtc	ttcgatcgtg	tcgtagatat	agataggtac	ggatctctag	ccacggtttc	60
cgcttgcttg	cggcagccac	gctggacgaa	cctggaatcg	atgataatag	cagatgaagc	120
tgctgcgagc	accacatccg	attcgggaatc	tgccccacaa	ctttgggaat	gccattacct	180
ggatttcttc	tgtagaaagc	ggaataacca	aatcggccaa	agcttctacc	gagccgtcca	240
cgcccccttg	acaatgaggt	tcagctcttg	gaagttgccg	attgcacggc	gacgtgatg	300
tcttcgagcg	tgagtatctt	gtgtgtacgc	aatccctgct	cacctggagt	tgctctcggc	360
ggttagctat	ttcgcgagcc	tcctgctccg	tcccaataca	ttgaaagtat	caccggcagc	420
cggcgcgccg	ttcagaccga	gattagtacc	ggttcggacg	gtcctgcctg	cttcacgcgc	480
tgattccgtt	gttgaacatg	gctttgatgc	gtccgtgaca	ggtaccggcc	agaaccacac	540
gcccatattn	agcgtaccgt	tctgtaccan	gacagtggag	acatnnccct	tcctttgtcc	600
anagaagact	cnatgatcga	accgangg				628

(2) INFORMATION FOR SEQ ID NO:1104

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 414 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...414

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1104

ataaaaaagct	cacccatttt	taccgtctct	tcgacaggat	angtcactat	tcgtaatgca	60
accccaaatc	ggcaaatcga	tagttaagtg	cagcatcaag	ggaatgtcgc	gagtctgtag	120
catggacttg	gtctgcatat	ccgtcacccg	atagcagtat	gattgatagc	ctcggctccg	180
gcataaacac	tcagcaaatg	agattgccaa	gcgtgtccgt	actgcaacgc	aaacgagtat	240
gttccgaccg	gaagcctcac	cgaaacccga	gagatagaat	tcaggagacc	ttcctccaca	300
gaggaagtct	tactgaaagg	atgggacatg	ctgtcgatcc	gatggagaga	acaagcaaag	360
cactatcggc	gaaggcgaga	ttgcgttcgc	atctttgact	cggcctgccg	gcta	414

(2) INFORMATION FOR SEQ ID NO:1105

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 424 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...424

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1105

```

ccgcgacgtt gatccttgtc gtcacatgct acatgtgcgg catgaaccat atctctgtct      60
gggcatgggc gtatcgggtg ccaccctcgt ggtgtggcaa cgttcgcgat gaaccgcaag      120
tacggagaac acgggctgat gaaacgggag ccgctcgccg gcatccccgt tacctgctct      180
ctcgccgtcc tgtccgcgta ttctttccgt ccgggctgta acgacaaacg aaccgacgcc      240
atgagaatat ccgtaagaaa tgcgaactgg aagagaagtt cccgctgctg gccacgagaa      300
cggctgcatc gtatcgaaag atgccgacat caccgtggct ttctcttga actgcccga      360
ctctttaccg tgacctcacc cgaatacgcg gcatgcatgc cgctggcac aaggcggtga      420
aagg                                         424

```

(2) INFORMATION FOR SEQ ID NO:1106

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 415 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...415

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1106

```

cggccaagct gatcaaagct cctttggtgg ccgaatcgcc ggtcagcatg agtgcaagg      60
acgacaggtc attccactcg gtagccatga catgtttagg ccgatgtggt caatatccgt      120
gccgacgaac aatatatcaa cccggagcag gttctttcga tatggagaaa gcaaacctgc      180
tggcatattc gcatgggaat acttctcgct tggggacttt ctgggtattt tcggctggtc      240

```

```

ggtcagaaaag acaaaacgcc tgtcagacgt cgtaagtagt acattcagat aaactaatag      300
taacgtaaac atagaatgaa tatgaaaaaa ggaacagtaa tcacattgcc atattgcagt      360
ttttgtcctg ctatttagct gggggtgtgc tcaatacaac ggcttcgtgg acaag          415

```

(2) INFORMATION FOR SEQ ID NO:1107

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 902 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1107

```

ctggagttgc tggacaagga tacatccggc tctcaagtaa cagcccgtag aaagccatga      60
tatgggcttc ggactatgcc acattatcag gacgctttag agagaaacgg gcgaaacatt     120
cgattccggg ctccacgttc tggtagtgta agtgtatcct accatgagca atatggacta     180
agccttcgca ttctggcata gaccctcctt acacaatggg ggctatggct cgcaaacgca     240
aagagtcata gaagaactgc gccggcaagg tctatacgac ctcaatcgca gccttcacct     300
ccccgccccca cccaacgcat tgccatagtc tcatccggtg cagtgcgggc ttcgaagatt     360
tcatcgccaca ccttagccat tcggccgagc attctgtttc tatcccgccc tcttccaagc     420
cgtgatgcaa ggagcacaaa cgaagcatcg gtgttgggag ctttggagcg catcgcatat     480
caccgggatt tttcgatgta gtggtcatca ttccgggagg aggagcagtg agcgaactgc     540
agctttcgac tcgcttgcca tcggacaagc atgtgcacgc ttccctctcc tatccttacc     600
ggcatcggac acgacaggga cgagacgggt gtggatcggt agcttatcgt tcgctcaaga     660
cacctacggc tgtggccgat tttctttaa ctgccagcgc gaagagtgga aattgatcga     720
cgaccttcgc tcccggctgc cgaaggactt cgaatgatga tgatgtactg ccacgaacgg     780
ctgatcagct atcgctccgn acaccggcca tactgaaatc atctgttcgt gaaaacacca     840
tcggataaag tccgtagaag atcgcatccg attagccgtt aacagcggat cgccttcgga     900
ct

```

(2) INFORMATION FOR SEQ ID NO:1108

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 722 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...722

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1108

```

ttttctctga taaacgatac gaacttgggc gatgtcggac gctatcgtac aataagaaac      60
tcaatttgaa tattgatcct gatatcaaag tgcttgacaa tgaagatatt attgagatca      120
tcaagtatct tattgagtta gtaaattcaa ggcattcagta gatgatatag accacttgtc      180
gaaccgtcgt gttcggctgt cggagagcag ctttacaacc aatttggtat tggtttggcc      240
cgtatgccag gacagtacgc gatcgaatga atgttcgcga taatgaagtt ttcaacctat      300
cgatttggtc aatgctaaga ctatttcctc cgttgtgaat tcttcttttg caccaatgcc      360
ttgtcgcagt tcatggatca gacaaaccca ttgctgaaat aacgcataag cgacgtctgt      420
cggcattggg ccccgagggt catcgcgcga acgggccggc tttgaagtgc gagacgttca      480
ctacacgcac acggtcgtct atgccctatt gaaacacctg aaggacctaa tatcgggtcta      540
tctcctccct ctgcgtatac gccaaaatca gtgatttggg ttttattaaa caccataaccg      600
ggaagtaaag aacggcaaag tagatttctc cgacaatgac tgaaatacta cacggcagaa      660
gaagaggaag agaagaccgt agcacagggg aatgcgcctc ttgacgaaaa tggtcgattt      720
gt

```

(2) INFORMATION FOR SEQ ID NO:1109

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 529 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1109

```

gaccgctcct tcgaagccct cggacagggc aacctcgagc tggccgagca gcaactccgtc      60
aggccatcaa agcctatccc gacttgcctt ccggctatcc ctgatgaaca acctcgggtgc      120
catccagcag agacagggca agccggagaa gcgctgctca cctacagcgc agccctgcaa      180
aagctccctg acgacagctc ctgcgcacga acagagccat gctcctgacc gaaatgggac      240
gaacgcagaa gccatattcg actacaacga actactcagg gcagagccgg acaagaggat      300
cttccactac ggcagagcca tgctctatct ggccaagatg gtacggcgat gccgagtccg      360
gatctgggaa agaaatctcc cgcgtcaatg accctcgctc aaagcccgtc tcggcatcgc      420
cctggtgga acgatgaagg caatacgaca aagccgaacg gctctacacn tacgtgatag      480
acaaactccc aaaaacgccg cagctacgaa gggcgcgccc gctcttctg      529

```

(2) INFORMATION FOR SEQ ID NO:1110

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1110

```
cgcttcgcgc ggtttgttcg ccgcgcgctt cgctcggagt ggagggagag tgggtgcacg      60
tactttctga cggttgcggt agacagccaa acggatatgt cagctacggc tgagagcgtg      120
ttattgatat agaaacggat tctgggcttt tgaggatgga ggcattcacc tctttctccg      180
ttccacata cttggaggaa cggacacgcg gaagggtgcc atctgtccga gtctgacggg      240
attgcctcgg tgagttcgcg ctggaggtag taggcgagtc ggtcgatggc gttggcacat      300
cgctgtggt cagggaggac atctcgcaa tgtctttgat gactcctcgt actcgattac      360
tcggggtttg tccacttggg catagtacat ggctngtctt tgtgcttgcc cgatcttcat      420
gagacggctc ttgactgaca ggtcagcatt tcgttttttt tgttggttaa gtgaattatg      480
gtgatatctc cgttgtcttt tcttgagcca tgacgatgtg caacacg                    527
```

(2) INFORMATION FOR SEQ ID NO:1111

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 992 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1111

```
atccaaacct gtcttcgctc agctctcgaa agccgaaagc tttcatattt cgaatgtaat      60
acgacttaaa gagctgtaaa tatgtcgatt gatggggtga attccccttc catgagcagg      120
agcattcggg acgaagcgac catcagcgga tcgaaccaac gcgggaataa cacttcctcc      180
gaactgtaaa tcgggttcaa cccaattgga acaagcaaac gaaaaagaaa agccagatga      240
aaattgccat cgcccgctcc atttcttcca acttatctat ggaaaaagcc acaaatcata      300
cagattcgta tcggcttcgc gcagtcgtaa gatcagataa agaattctgc cagaaagagt      360
gctatactat tccttaccgg atcggactga atcggccatg caaactgcat agtttggtt      420
ctttgataaa gtgcaaactc cgtgctgctt gtgttcggcc gtaatctcca gttcggtcag      480
aggagaaata gcaaacgcaa gctaccgcca cttttccctc gcttgatga acgtggtata      540
gataggacac tctgccactc tctctactga aaagatgggc tatactatac tatcggtata      600
agccgtattg tggagaacta ttgctctgct gactatatca tgactaaccg aagatcgata      660
```

caaatatcgt ctattcagtc gtctgaacaa tcgttttcca catagactgt cgataaacct	720
gttgaaaatt cgctgtaaaa acttgtttat tctctgtcc gatccgaaag aatcttcata	780
taaattattc ttctgcaaag acaaaaaagt tagcagcaaa ttctcatcaa ctttgccaag	840
gattactcac agctcggcac aaaaacaaac agaccgaatt gacgtagaaa caaaagtttt	900
ccacattccg atggaaactc attggctatc acattcaacg aagtgtataa cctgttagta	960
agctatcagt atctattcca atctgttaat cc	992

(2) INFORMATION FOR SEQ ID NO:1112

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 748 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...748

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1112

ccaggacaat gcaaattatt tccatcgtct gcgagaaatt acccttgaat cagcaacacg	60
aagttggtgc cggcctctca acttccaaag tattggaact gaacaaagaa tctctgcttg	120
ctctgatcga agaatcctta tacggcacca tggtagcgtg acttccgctg cgaacggaca	180
gcctctcaaa tgccagtctt gatagaaaac catgacaagc gcaactccga tgtttactcc	240
gatgcaccac aggctactac gtacgtccta tcaaagccgg cacttatacg gtgaatacaa	300
agccgagggg tatcctgagg caactcgtac cattacgatc aagacaaaga aaccgtcatc	360
atggacattg cattgggcaa ctcggttcc tctctgtacc cgatttcaca gcttctccta	420
tgaccatctc agtaggcgaa acgtccaatt ccaagatcaa acgacaaata accccacgaa	480
ttgggagtg cgttcgaagg cggacagcct gccatgagta cagagcagaa tccgctcgtt	540
cctatagtca tcccgtcag tacgacgtta cgctcaaagt gtggaatgaa gtggttccaa	600
cacgattacg aaagaaaaat tcatcactgt caatgcctat gcctgtagct gaattcgtcg	660
gtaccccgac ggaaatagaa gagggcagac ggtatctttc caaaaccaat ccaccaatgc	720
caccaactac gtatgatatt cgatggcg	748

(2) INFORMATION FOR SEQ ID NO:1113

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 448 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...448

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1113

ctaacattgt	cgccatcagc	atcaatcaac	aaccagcctt	caggaatact	ccggcctcaa	60
agccttcata	taagataatg	tccgattgag	aatcataatc	agcttatcgc	aaaccgattg	120
ggactcgata	ttgtcgttat	aaacggcgtg	acacaatatt	ccacttncac	ctgatcgtct	180
cgtgaagaat	aagtctatcg	atatactcca	aaacagtcgg	gtcttgtatg	tgaacaagga	240
gcgagcgttt	gcatagatat	tgtagccggc	aagctgcaat	gggtctttat	catcgtctta	300
tcgggttcgt	aagccgttag	gataattcca	ctttaatcgt	ccctgttggt	ttcaataagc	360
gagacaacga	aatcggtaac	aggttcgggc	tcgatgcagg	agtcccgaat	ccagggtgata	420
tcgtccaact	tcaagaaata	tatatcgg				448

(2) INFORMATION FOR SEQ ID NO:1114

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1018 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1114

caattatacg	caggggttatt	gtatctcatg	tccttcgggt	agtaggcaca	tatcctgcta	60
caggacgggg	aaatagccga	ctttctctcg	ataaggctct	cctttttatc	ttacotttgt	120
gccgaagaac	tcaatcagct	attacaaatg	gatattgccg	tagtcggtat	cggctatgtg	180
ggactgggtca	gtgctattgc	tttgccggagt	tgggagcaaa	tgttcgctgc	atagatactg	240
atagaataaaa	atcgagcagc	tgaacagcgg	gactatcccc	atctatgagc	cgggcttgaa	300
aaaatgatag	ctcgcaatgt	gaaagccggc	agactgcgat	tcgaacggag	atagagcaag	360
cogtgccgga	agccgatatt	gtattcatag	cgtgggtaca	ccggccggcg	aagacggcag	420
tgcggatatg	ggctatgtac	tgatgctgcc	cgtagtatcg	gccgtgccat	gagccgttat	480
attctgatcg	taccaagagt	accgtgccgg	tgggatcgta	ccgactgac	aggaaggttt	540
acaggaagaa	ttggacaagc	gtgagggtgct	gattgacttc	gacatagctc	taatccggag	600
tttctgaaag	aaggaaatgc	catcgatgac	ttcatgaacc	cgatagagtg	gtcgtgggag	660
tggattcgga	ccgggcgcgc	gaactgtcac	aagcctttat	aagccgatgc	tcttaaacia	720
tttccgtggt	cttttatgga	cattgcttcg	gctgaaatga	ccaaatatgc	tgccaatgcc	780
atgcccgcac	tcggatcagc	tttatgaaat	atgtggccaa	cttggtgcgaa	cgggtgggagc	840
agatgtttcg	atggttcgtc	tcggtatcgg	ttccgattca	cgataggcag	caagtttctg	900
taccocgggtt	gcggatacgg	aggatcttgg	ttcccaagga	tgtaaaaagc	actgatcaga	960
accagcagaa	gacaacggct	tcgaatggaa	gtattggaag	ccgttgaacg	tgtgaacg	1018

(2) INFORMATION FOR SEQ ID NO:1115

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 367 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...367

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1115

cggcactccc	ctccccccgt	acgatgggtc	aggetccaaa	aattgccggt	ttacagccat	60
gaaagcgtgg	cgcgtaattt	tttgcgtttt	ggctcggggg	taaaattttt	acgcgccaaa	120
gcgaaaaaat	tctcgccccg	ttttctcgga	tttacagacc	acaatccgag	cattttcggc	180
tcgtaattta	tcgaaggaca	gattttaccg	cattaaagat	gacgtgtact	tgaaaaaagt	240
tgacatcgga	ggggtaaaaa	aggaaaatgg	ggaagcgaat	ttcatctgtt	ttctatgaga	300
tttgagcaaa	attcaagata	aaagaataac	ccctgacgtg	tacgaaaaaa	gttggggatc	360
ctctaga						367

(2) INFORMATION FOR SEQ ID NO:1116

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1116

gatccccggc	ggtagtgtgt	caggagtttt	tccacatagt	cggcattgct	tgtccggcca	60
taaattcgcc	ggtggatatg	tccagaagag	aaataccgag	acctctttgc	cgcaggagac	120
ggctgcaagg	aaattgttct	ccttatggag	agtacattgt	cgttggtcga	tacgccggga	180
gtgaccagtt	cggtaaaccg	cgtttgacca	gcgttttggt	ctttttcgga	tcttccagtt	240
ggtcgatatg	gccacgcgct	tgccggctcg	taccaatttg	ggcagatagg	tatcaacgca	300
tgatgaggaa	agccggccaa	ttcgacaaac	tgggcagctc	cgtggcacgc	ccgtgtcagc	360
gttatcccca	aggatctcgg	aagccacgat	ggatcctccg	aaaatgtttc	gtagaaatct	420
cccaccctga	agagcaggat	acatcagggt	gtttttgctt	tgatctgaaa	gtattggcgc	480
atcaaaggcg	ttctaccaca	ggctttgcc	tcgtgaaaaa	agttgattgg	ataagaaaaa	540
ggcagccaag	tgcatgtc					559

(2) INFORMATION FOR SEQ ID NO:1117

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 323 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...323
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1117

```

ggaaacaaaa cttaaagcat ccttggn tac atcttccttt ttgactatag taaatctnca      60
atttgaacat tccctccgag gaacttttga taatctctna gtaagggaca tgtacaataa      120
catacttgag caattcccaa aacagatctc tngntgctct cgtgatgata ctacatgtgc      180
ttncctataa gttttttata ggcaggcatc catttaactg cttttntaag ccagtattnt      240
agacgtagga ggcattatta agcataaaca tacttntaac gntcttatng tttacatga      300
aagantttatt cntacttaa aaa                                           323

```

(2) INFORMATION FOR SEQ ID NO:1118

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2056 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2056
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1118

```

cgaacatccg tctttggctc tctgggtgcyg caacaatgaa atacgagaag cctcaaatac      60
tggggatggc aaaaacgctc cgaccgatcc acctatcaaa gtttctcacg gactacgaca      120
agctgttttg ccgacttctg ccggagctgt ggcagcattg gatccacac gcgcctatgt      180
agagacatcc cccgaccggc taactgggga cgcccagcca ctttgggtctg gggtgacagc      240
cactatgggg agtatggtac ggacgcgaac cattcggcat cctgcgagag aggaccgcg      300
cttcatgagc gaattcgat ttgaaagttt ccccgaaga aaacgttgga gagctttgca      360

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tgccgggagg	acatgcagct	cgactcccc	gtatgaaagc	cagacagaag	agcagcgtgg	420
gcaatgagat	tatactcgaa	ttatgcggcg	agactatccc	gagccaaagg	acttcgatga	480
tttcgtattc	aatcgctcat	catgcagggg	caagggtatgc	gcacgggatt	agaagcccac	540
gagcggccaa	accctactgc	atgggtagcc	tctactggca	actcaacgtg	catggccggc	600
catctcatgg	tccggcatag	actactacgg	gaactggaac	cggttgacta	tcagggtacgc	660
agagctttcg	aacccgttat	catcgccag	atgccgaacg	gcgcacgac	agcatcgat	720
cggatgctcc	cgaagcaaag	gagaggatcg	gatggcactg	cgcacgcagc	cgatcagctt	780
cggaggaaac	gctatccgac	tttttggtg	aggaatatcg	aagtagacaa	cgacacccca	840
ccgtcctgcc	attcccgatc	gaacaatggc	tgccacagga	atgcagcgaa	cgaacctgct	900
tcgcctgtcg	cttgtggagg	atgtgggaga	acatacggcg	aagtctgggc	ctccacgctg	960
tattatcatc	attcgcccaa	gatttgctac	tacctgtggc	tcctcctatc	tcgcaagagc	1020
ttcgccgga	ggcctgagga	cttgggagct	gacagtgcgg	tcaccctatt	tgggtgaagat	1080
ctatgtgtgg	aaacgggatg	actcggagcg	cgattctccg	acaatgcttc	gatttgctcc	1140
cgaacgaaga	gcgcagacta	ataatcacgc	tgccacgat	agtacggaag	acccggctat	1200
tcgtctgcga	cacttataag	gatcgcgat	ccggcctatc	ccggagtctc	tcctactcgg	1260
agggcgtgca	gattctcgcg	aagaaaccag	aaaaagcggg	gccaatatcc	tgtacgtgat	1320
caacaccaac	gacctctat	cttcggcagc	tccatgcac	agataggcgg	gctatgctct	1380
tgtcagatcc	tgtcgtgagg	aacgagggag	aagggtatcc	cactcgtctc	tgtacgatcc	1440
gggtcaaagg	gggaaaatcg	gctctcggat	aaggcaccgg	tacacgacct	ttcattccat	1500
ttcggccctt	ctaccatcag	aatcggacaa	aagggtctgc	ttattcggag	cagcagctgg	1560
agaaaaagta	agcaacggac	tttcgttcgt	actccaatat	aaatgtcacc	cgaaaggaaac	1620
ctctacggat	tcggctcgat	cgctctcga	tatgaagccg	acatcataag	aaaatcgaat	1680
accagggtat	cggattcgcc	aatcgattgg	actattcgct	cccttattca	gcatgagtag	1740
tgctctttcg	gagcgggtgg	tcctgggatg	agtttcggaa	aagatgggag	tcaatcggtt	1800
cgacttcact	atcgtttgca	cgtttacctg	tagatcggga	tctatccgca	gtcggctgtg	1860
taggaaaaaa	tcgccgcaca	cagacgattg	ccgtcttaca	gtgtcacctc	ttatagacct	1920
tcatgaatca	cacgctcgga	cgggacggac	acgacacgtc	tgtcaatgat	tcgccatcac	1980
ccctttggag	caatacccg	aactcactct	tcgaaaacac	gaacccaaaa	cgctaaaatt	2040
gcgggtctgtg	tttttc					2056

(2) INFORMATION FOR SEQ ID NO:1119

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1050 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1050

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1119

actctagagg	atccccggct	ccatgggggc	attgccacta	ccgtatgtcc	catgactaca	60
cccttcagtg	aggggatgcc	gagaatgctc	tccactactc	tcgtgtaatg	ccgggggaata	120
ttttcaggat	cacaacgttt	ctgtccatcc	cgctctggaca	ctgaggggcg	catcggcccc	180
tcggctctgt	atcagacatc	ctcgtatcga	atgtcgatac	cggcataggc	caagggtgaa	240
aagtttatga	agcaaaggcg	tcgaactggg	ctgcaactgac	tttcgatgta	cgatgccacg	300
catcagatag	ttgtcgaaga	aaatacaaac	ttccggtagc	cggcatagcc	gttttggttg	360
gctgcagcaa	tttcgatagc	ggtgatgagg	tttctttgcc	atccgtacga	agggtaccga	420
taggcagctg	tgaccctgtc	agattacggg	tttctgcaga	tcacccagca	taaagcttag	480

agcagaggcc	tgtaggccat	cgtatcagtg	cctgttagga	tgacaaaacc	gtcgtaggcc	540
ggtaattctc	ccgaatggtg	tcggccagcc	ttaccacaaa	atccggagga	tagcggccga	600
gtcgtatgga	ggatcaaaact	ggatggagtc	gattttgaac	cgaaattttt	cagttccggc	660
acattggttt	ccagatatatt	gaagtcaaag	cttctaatac	tttcgtctcc	ggattctcaa	720
tcataccaat	tgtccccccg	tatatatgag	gagaatcgca	gaacgtcctg	aagcagattt	780
agttgcatta	tgtgggtgagc	taaacaaaac	gggtggcggtt	ttttccttcc	ggctccaaga	840
tcgtacagcc	atcggactat	ggctttggat	acggccggtg	cgaaagataa	taaaagctcg	900
ttcagagcat	gctttacggc	cagagcaatc	gttttgaagt	gttaacacac	atataaacct	960
gatgatgctc	catccaaaat	agcttagcac	gatattgtct	gagagcgtag	agaggaaaac	1020
gatcaggaga	aaagtcaaga	ggataactct				1050

(2) INFORMATION FOR SEQ ID NO:1120

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 839 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...839

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1120

ctgacataat	tcttgtgttg	tgataaatcg	tcgttagtta	catgctctga	aacgtttcaa	60
aattacaaaa	acaatcaagt	ttttcatcta	tgctctaaag	acagcatcta	taaaaacgta	120
tttgcaatgc	gatgcaattc	gctatgaaaa	gcgataaaat	caagtgggag	gcctcttgtg	180
agacagtaag	ccgcctacat	attccctatt	gacggaccgg	tagtaaatga	cgaagtgttt	240
ggcctggact	tcttcccga	accgatgcac	ccttaccett	tgacgcagct	cagcagcgat	300
agccccagcg	acaaaagaag	catttgcgtc	gctcgagta	ttccgataga	gctgaatgag	360
ggcttggtt	tcggcagcat	ccgcaggctc	gcgatctggg	agaaagcacg	aaccggcttg	420
ttgttttcgg	gtttgatgcc	agcaggaagt	ctattgtccg	ctcgcggtag	tcctccatgc	480
tctgccccct	aaccaagcat	agcgaagtgg	ggctgctaca	ttgatcagca	gggcatccgc	540
gaaatagcgg	caagcgtact	acgggaagga	acaggggtgg	gcttcccaag	cgataatgcg	600
aagcccagta	agacgatgcc	tccacgctga	gcttctggcc	agttctttag	cggacacagt	660
ctccacaaaa	gaagaaaaca	ggaactgcag	cgatgcagaa	tggcggncaa	ctgtcccaat	720
cgacgatgta	cgaaaaggca	ggacggggcg	gatgcagacg	aaagagagag	gggatcaaga	780
ngctcaggtc	gancttatgt	ctcaaaaagc	gtattccgaa	gcaactnttc	gcaattatc	839

(2) INFORMATION FOR SEQ ID NO:1121

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1121

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cgtcaatggc aggggtggcat ctacctatcg cgaagaaggc gacgagtaca tattcgcggtg      60
cgcttggccc ctgagtttcag gcgatcattg agggacttga aaatatcctc atttatacgc      120
ctcagggcaa aggtgttcgt ctgggaggct gggtaaaata gaagagctgt acactcctcc      180
caccattgaa cgaaagatcg tcagcgtgtc gttatcgtag cttccacggc tgtcaaagga      240
gctgcttgag cgatttggtc gaagtggcca aagaaaagat tgctcaactg gagatcccga      300
cgggattgac tacaaaatca gtggtacata cgaggaccag cagagacatt tgcagacttg      360
agcaccctta tgctgctgat cgtgatactc gttttatcgt catggcagca cagttcgaga      420
gtctcgtcga tccgtttgtg acatgttttc catacggttt gctttcaciaa ggtgtcatag      480
tcggctcttat attacccaat taccactttc agcgcctatgt cctttatcgg tctgattatc      540
tgatgggtat cgtgggtgaa agaaccggta ttgtgctcat cgatttacct cgtctgtgtc      600
gcgaacgccg tatgggcatt ctctctggcc gtagtacagc cg                                642

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(2) INFORMATION FOR SEQ ID NO:1122

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 512 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1122

```

cttcagctgt ttcgctcaca gctacaacga tttccgtata gatgcggagg tctttgtaac      60
agggttatac tggagcggag caaagtttac tacctgacac gtacatcgcg caggatgaaa      120
ggatcgctca gcgtagcgat ttcgcccga agaacttgct ttcattatag ctctgtccgt      180
acacgtaggg gatttgcag gattttcagc gcgagagata acacctttag agggagcgat      240
cagcaatcct tcttttcgat gaatttggaa gaaactacct ctaccttcac cgagtggtt      300
cagaaacggc aagagaacgg gaaagaatgg gcaatatagg cgtcctttot ccgagatatt      360
gacaccttcc gtgaaggtag gcacctgaac tacccttttg aagtctgttc gcctgtgaac      420
tgaagattgt ccatacgga tgcaccttg acatagactg ctcagcggag agcagtcgta      480
cttggtgggt cgaacgcgct ctgccggctg tg                                512

```

(2) INFORMATION FOR SEQ ID NO:1123

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1063 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1063

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1123

ttcgccaccg gctcggaag cctcgatcag gtagtcgtac gagagaactc accgaccttt	60
ggagcaccct cctgttccctg ctatccctcc ttgtcacctc aagaagtggc tccatcccat	120
cctcacgata ctgcttgccg gtctcgccgc ctgctgatat acggcttctg aaaacgagct	180
atgccataaa tcgaatatga cacaacccat tcggccggct taggatttcc aagaagggtc	240
ttatccaacc gagatcgaca gatggagata ttcggttgaca gggtacgaac ctgcggcctt	300
tatctttaga gcttcctaata atcttcaaga cggttcanc aactctcaag aaacgtntgt	360
tggtatgcct tagcaattcg cgttcgggtg cctgcgtccg atgctatcct cgtacttttt	420
tatgcttctt gctgtaatgt ctctaagaac tcgcgacgtg catcgaagat ggactcaaac	480
agctcatcgg atctgcaacta ttgacagcct gtaaggctct attgcccact attccatcac	540
ctgcacacct agtatccctt gaggaataac aataccatac ttgcctgacc ccaaacccaa	600
tcgacaagga tattagccac cttttgagac tcgattagtc agctttccaa cgatcccaat	660
aaaatggttt caagactcga ttcaggcgtc atcatcggtt agcaacttga gatccctcaac	720
atcgatgtct ccatcccgtc tttgtcatag ccgactcttt tccaagtgcg tattgttaca	780
ccttggtttg tgccctcctc gcacgcggcag gatcatggac aaaaccacct tccatttcaa	840
tatatatggg agtaataact taacatttgc catctttctt cacttctttg agttcaacat	900
aaatcaactt ccaaaagcca ttcngcatcg tttacaaaaa gctcgttcca cagtccttcc	960
gtcattccct cgactgcatg accttcggtt taagcctatc ctatccataa ggatctatct	1020
ctctcttaag agagtgatta tctatgtaca aagataagtg ttt	1063

(2) INFORMATION FOR SEQ ID NO:1124

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 527 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1124

cgaaatttct	gtttgctcga	tgtccatata	ccggagggtt	gacctttccg	aagacactaa	60
gaatcagctc	tcagcaaaa	gagctcaatg	aaactccccg	caacagtctc	aatatggatt	120
ctcctatgcg	gaggcaactg	ctcttcctac	cattatctgg	aagttgcgca	gtatgaggat	180
gccacttgga	aaagtcta	tctggaagtt	ctacctcctt	tatggccggt	gccggtttca	240
gcccctcaag	ctgatttgga	agaacagccg	tcattgattg	gttttagccg	gtcagcagg	300
ctttcttata	aaaacaataa	ttatttata	atggatgtag	acataagcat	gctatggcac	360
gcacgtatgc	caatggcaaa	tttagccttg	gtctcgcatg	gcctacgaat	atcgcatctc	420
caataccctt	ggggcaggag	cactgcgaca	tatgaattcg	gggccgaagt	ttttgcagcc	480
ttggctacat	caatgntcat	ttctaagaaa	acaagaccct	gataggg		527

(2) INFORMATION FOR SEQ ID NO:1125

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 323 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...323

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1125

ccccgggtgc	ggcacaagca	tttctctgcc	aagtctacct	cggccaagcg	cgcctacgag	60
agcaagacca	agacttgctg	aagaagcttg	cacaactttg	gcagagaatg	aagactttgc	120
acctgaagat	gctctacagc	tcgcggctgg	aatccctatg	accagaatgc	cgtcagctca	180
ttcttcgacc	ctgaatgatg	tttggcctcg	cagatggctt	cgacatcgtg	attggcaatc	240
ccccgatgta	caactacaga	ataatggggg	agaattaacc	aagctctatc	aaggtgtgac	300
tttcaagact	tttgcctgac	tgg				323

(2) INFORMATION FOR SEQ ID NO:1126

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 586 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...586

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1126

```

cgtcgtgtat tgggtgtaaa tccgaaagtg tctaacgtac agggagtgga tgtgtgcccg      60
atgtgaaaga tctaccccaa gtagatttgg ctattttgct attcctgcac gtttctgccc      120
acctacgatc gaggtgttgg tgaaagaaaa gggaccaaag gaatcatcgt attctctgca      180
gggttctccg aaatggtgca gaaggcaagg ctctcgagcg gcaaattggc gaactggcca      240
atgaaccgga gctaccctga tcggcccaa ctgcgtcggc gtaatgaatc cgctcaccaa      300
tcggtattta ccactccggt gccggtactt acgcctaagg gatcgacttt atctccggtt      360
cgggggcaac tgctgtattt atcatggagt cgctctgagc aaggggcttt ctttctatcg      420
gtatattcgg tcggcaacgc totcaaacgg ggtgtggaag atgtgctcga acatttgga      480
gagacattcg tgctgccact tcttctcata cactgctcct atatatagag actatcttca      540
accgaaacgc ttctgaaaca tgccagatca ttggtacaga aaggct                      586

```

(2) INFORMATION FOR SEQ ID NO:1127

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 400 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...400

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1127

```

ctanaggatc cccgtgcgat gccgacaatg aacgtatcgg tcggctttaa ccgcagcttc      60
aggtgtggtg acgcctgctc cggccgaatg gggcaagtgc cttcgggaca gtaccgattg      120
cgttttggcg agagtggcgg agaggatccg actttgttac gaaggacgtt tatctcttcc      180
gtccgaaaga tcgtcattgt cgaatccctc ccaaggcctt tggacatatg tggcggagga      240
gaaatcgaca gtcaccgccc tgcccgcatc ctggtcgggt ctactcccaa ggatcggatg      300
ctcaggagtt gtatctgttc tacggacctg actcaggcag gcngattcat cgaaaggaag      360
atgatccgct tgccggccgg gtgagatcgt cggatagtgc                      400

```

(2) INFORMATION FOR SEQ ID NO:1128

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1160 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1160

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1128

```

gaatctgcca tccggacaca gagcagatag catcttccat caatagacct agtatcctct      60
cgtatgagac cataatatcc tctcatgtga gaccatagat cctctcatgt gagaccatag      120
tattctctca tatgagacca tagtatctct catatgagac catagtatcc tctcgtatga      180
gaccatagta tcctctgtat gagaccatag tatcctctta tgtgagacca tagtatcctc      240
tcatggagac cataatatct tctcatgcga gaccatagta tcctctcata tgagccatag      300
tattctctca tgagagacca taatatcctc tcgtatgggt tcattcttgt atctccggga      360
aagatcaaat agcaagcagg tgtatgactg ccagcaaaca gaagaatgaa caaatgtgcc      420
tgcttggtgt gcaaaagtct ctacaatgca aaggaccaag caaaagctat tagtctgaag      480
aacatgcaga agagagggaa ggggagcgga tataaaaaat cggccctgcg aaaagagctt      540
cgcagggccg gaggaatatg aaaaaagagc ttttgggctt gagggcggtg ataatagccg      600
gtttctcctg cttagtcttc cggcacgtag atgatttgcc gctttcgagc tggtaagcta      660
cacctacgcg cttgcctttg ctgccgctcc atcggaggat tcgtcggacg gagtgtactt      720
ctccaccttg tcgccttctt gatcaagatt tccatgttgt ccttgccggg attcttgacg      780
attggtagtc ttccttgctg aagacttcgg tcatgttgaa tttggtgacg aggcaaccat      840
cagtgccacg gcaaagacca tggctacgtc gaagagggtg gaacaagtga ggaaggatcc      900
gtgtcttctt cgtggaagcg tcttctggac aggcgatcag gagagttttt tcgttgatgt      960
aatcgagcca aacgaggctg tccgattgta agtgcgacg atgtgcaggg ctatataccc      1020
tacagccgag caaacatacc gatgaccgtg gtggcaaagg ctacttgcat attgtaggca      1080
tctgtccgat gtcgccgctg gagagtcgga caagggccgg gcccatcgga tgagcgtacc      1140
catcagaccg agtatcgggc

```

(2) INFORMATION FOR SEQ ID NO:1129

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 568 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1129

```

aagggaatac ctaatcatta cttcacacca tagtgcaaac ttcgtagtac nctttcacnt      60
tttgcacctg attgcctngg atgattatth ctccgtcttg gctgctcctc ccactccgca      120
tcgtgtcttg agcaggcgca gacagatagt cagatcgctg gcggaaccga cgtgtccgct      180
cacaaggggtg acctcttgcc ccgacgctgc ttccgatcca gcgtgatacg cagacgttgt      240
ttctcggagg aagcgtctca gctacctctt cgctatcttc atgttcgtat tggaatcggg      300
attcgtactg tacatgaccc ccagtcctgt cttccagtca ctctatttta tattctccat      360
aaataaaagc tgccgaggag ataccacaac ctcacgacag cctttgttcc taatcaaata      420
ccgcgcgtct tagtgcggtat tgttcttttg ggccgacttg gtaatgcgct tgcgcggctc      480

```


aggcatggtc cgacacgaac gatatgctca ttgcaccct tccacatgat ctcccttttcg 540
ctgtgcgag ataagctatc tcacgcc 568

(2) INFORMATION FOR SEQ ID NO:1130

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 460 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...460

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1130

tggcagatgg ttctgccatc cgctgaccg tagcacgcta ttatacgctt cgggacgctc	60
cattcagaag ccgtattctt ccggcgtaga tgaaaattct atcaggatct gaggaatcgc	120
ttcaatcacg gagagctata ctccggccaca gcataccttc actgggagga aagatattca	180
agacagccgg tggccggaag tctatggtgg cgggtggcatc ataccggata tttttatccc	240
actggtacag nccgtcttaa ttccatatg atgaaagtgg aggattcgga tttgtccctc	300
gctatgcttt cctgtacagc gatgcgaaca gggtttcctt gagcgtttta agacagtoga	360
ggagttggga gcttatctgg atcgacttta tcgatttcga ctttgcttct tttgccagcg	420
taccggatcc cgatgccgta cttttttaat caacgaagct	460

(2) INFORMATION FOR SEQ ID NO:1131

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 424 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...424

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1131

ccagacagca ttctgatcag ctcatgtcg atcttcgatg ccggcagtag atcgatcatc	60
ttttgatcaa tgtatcggcc acttgaggta gcagttcggt gaggtcacga ccaattccat	120

ttcaccctct	ttccacttat	gaggetgacg	gatgcgcgaa	tgaggagata	cagcccctcc	180
ttgcaataat	tgccgagttt	acatgagcct	gtccgaaaag	aggtatttcg	cccgtgccgg	240
acagacctct	aacgtaatct	ttgagtacgg	attattcgag	cgagagattc	cctgaaaagg	300
ttggtaacaa	taccggccaa	aaccaaattt	ttcccgaaca	aggatcggat	cggtcaaaac	360
ggctgcatgg	gtattgcaat	agtggatcga	gatgacttgg	tactgagcct	ttggattgga	420
acta						424

(2) INFORMATION FOR SEQ ID NO:1132

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1132

tccccttcgt	cgttcgggtg	cgcacggcaa	gcaggctctg	accatgacgt	gggcttcggc	60
tgcaatgcgg	cagcaatcat	caatacgcgc	atcatcgaag	ccaaagggag	agactgatag	120
ctattctgac	caacaacttc	tctctgttaa	cgggcgttgg	cctacacaga	tactccttgc	180
cacgatcttc	ctcacactgc	cgtaccggcc	tatttgcttg	gcgtgatcgg	cattgggtca	240
gtcgtgccat	tgcattgctg	ggtatcgctt	tcattgtttt	cttctcttgg	gtacctcccg	300
gacgtgctg	cgaggtcaag	tctccacgtt	caatctggag	cttcacccta	ccgcccggca	360
cagttttggc	agacgatcta	taaatccatc	gtgaccgtac	actcggctcg	tttgtggcgt	420
gcccgttgtc	ttttgccgcg	gcggcccggt	gcccttattc	tggtttcacc	tgcaacatca	480
aatcgggggg	attcggggata	gccgaa				506

(2) INFORMATION FOR SEQ ID NO:1133

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 422 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...422

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1133

agtgctcggg	cgtgaaagag	accgttggac	gcatacgtcg	tgccatcgag	tcttaggctg	60
acagcaataa	tttttttcga	aatatatgcg	attcctttca	gcctgatcgg	attggctctat	120
tcttcgctga	tcaaacttgc	cgttccgtca	atoccaaagc	ccgcatgatg	gttcgtgggc	180
gatggaaggt	gtggcgacgc	tgcgtgaggg	catagtgccg	ggcgggcgct	atatatgggt	240
tcatgagctt	ctttgggcga	attcgagcag	gggagaccga	tgatagaacg	catcgaagcg	300
aatatccgga	ctataggatc	gtgcttacct	tcttcagccc	ctcggatatg	aggtacgtaa	360
gaattacgaa	ggtgccgacg	tgatcgtgta	ttgccggcag	atcgttgccc	gagtgcgtaa	420
gt						422

(2) INFORMATION FOR SEQ ID NO:1134

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 548 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1134

tgggtatagc	cagagctttg	ctggcgaagc	ctgcgttgat	cctggccgag	aaccacaggg	60
caacctcgat	tccgtgaccg	gattgcagat	cgcttctcgc	tctacgaaat	cagtaagcag	120
ggcactgcag	tacttatgag	cacgcacaca	gcagcctgct	gtcgcacatcg	ccggcacgga	180
cattggccgt	tcgtaaaatg	gcgatgcctc	ctctttggtc	gagcttgagt	gcagatgctg	240
tttcagaaaa	aatacggaaa	tagattagca	cgataagatc	aggaattgaa	agtttcaaat	300
ttggcggtag	gtctgtagga	gatgctgaag	cgtatccgca	agtttgcccg	actgattact	360
ttcggtaaaa	ggaagaaaaa	ttatagtcct	ttggctatgg	ccggaacgac	caattoctt	420
gtcgaaatag	cctcacacct	ttcaaacgcc	aatgtggcac	aggcaaagag	ggtgtgccaa	480
ggtgttgcca	agaaatatca	tcgcgaaata	aatgctctat	ccaaacgtnc	ggatacctta	540
gcgcagcc						548

(2) INFORMATION FOR SEQ ID NO:1135

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1135

```

cggagccgat gccatggaca aagcggccaa gctcaaagcc ggccaagtgt gctgctcgaa      60
aatctccgct tctatgccga ggaggaaggt aagccgcggg actctccgac gatgcttcgg      120
acgaagaaaa agccgcagcg aagaaagcgt caaggctgct cagaaagagt ttacgcaaaa      180
gctggcttcc atggccactg ctacgtgaac gatgctttcg gcacagcgca tcgggcacat      240
gcttcacagc actgatcgct gactacttcg accgagacca caaatgttc ggctttctgat      300
ggagaaagaa gtaaaagccg tagaaagagt gctgcacgac atcagcggcc gtaccgcgc      360
atcatgggag gctccaaggt atcgaccaag atgaaatcat cgagaacctt ctcaacaaag      420
tgataaacct gatcctgacc gcggaatgac ctatactttc accaaagcgg caggcggtcg      480
gataggcctc ccatcggtga agacgacaag ctggatttgg ctgcgcgacat cgtgaagaag      540
cagccgaagg ggcgtcaatc tgatac                                     566

```

(2) INFORMATION FOR SEQ ID NO:1136

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 794 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...794

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1136

```

atccccgaac ctcaattcgc tgtgattttc gtttttatac aactgtccag ggactatttcg      60
ggattatgtc aggtggaaaa tggcgctcagt gcgcctccgc caattggctc cttcgccgat      120
ctcggtatc agaggaacac gcaaagaggc atcacccctt ccatacacga gcgtacaagc      180
tcgcgaacct ctgcagttca ggacgaagaa cgttgaagtt gagttcgtcg tgcaacttgca      240
ggatcttcgg ctccgcagct tacgctcagt gatttcctcg tgtattctga tcatgccagc      300
ttgatcaggt cggcagcaga gccttgata ggggcattga tggattccgc tctgcatagc      360
cgcggaagaa cggcattggc actgtttata tccggaggaa tcgcttgcca ccgaacagtg      420
tgggtgacgta gccctgtcgc tggcttcggc aatactccga tccatatacg ctttaacccc      480
cgggtaagag caaagtaacc ttcgatcaag gccttggtt ctgtacggga gatattgagc      540
gttcgctaag cccgaaagca gagatgccgt agatgacccc gaagttggcc gttttagctc      600
ggcggcgcgt gtcacccgtg acttctacaa gaggcagctg tatatttttg aaggctggcc      660
tcgtggggat ggtcttcccc atggagaaag cctgtatcaa gctctcgtct tcaactcagat      720
gcgccatcag ccgagttcga tctgagaata agtctgcgct catgaaaatc attcgtcatt      780
gtccgaccaaa agca                                     794

```

(2) INFORMATION FOR SEQ ID NO:1137

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 486 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...486

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1137

```

gtattgcttc tgatccatgc aggcagcacg gcctattccg tggtccgaa ctgtatggct    60
tcaaacactt ccgcccgggt gtggctccgg tgggtgtctt ttcaataagg ttggctccgc    120
ttcgcattat cgctatctgg aggaagcgct gcggatgccg gtgtggccag cctcggttac    180
ttgccgaaga tgaaagtttg gaaataccgt cgcggcattt gggcttgtct gtggaggatt    240
tagtcgttat gattatttgc cggacagggt ggcagatgcc atcgagaagt atgtgatgtg    300
gagagattgc ttggtctgat ggcctccgat gtcgatccgg ttacgaagaa gagagcttta    360
cggagtcttc tttgcacggg aggaaatgca ttcggtggcg gatgacgaag catttaactt    420
cacctatcgg gagaatatc gcggctcgaa agccgggaag ggtttgttcg attcagtcct    480
ttgcgg

```

(2) INFORMATION FOR SEQ ID NO:1138

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 622 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1138

```

ttccgctaaa agattctatc aaggaaagag ccttgtaatg ataatccgag cttctgccaa    60
agcaccgata cgacggctat ccgttccgag atgattcctg cttgtgcggc tacgatggcg    120
tcccttagat tcaatgcagc gttcaacctt tttggtgata tagcatcgca tctgtgtatt    180
gggacatatt acgcatcggt tgccgacctc gatcgcgaaat aacattttgtc ccacaagggt    240
cttgtctgta cgctgttctc gtaaagctgt ttaacagaat cagtggggag ttcttttcgt    300
acagcaatgc agtaatacgc tttttctctc gggcgatttc agtacagagt gtttttcttt    360
ttttccacat ccgaccaaaa tcgacaatat gataataata atgggaaaag tttcttcatt    420

```

tggtcttcta	tatgcaagtc	attccggtgt	aaaactaatc	aaacatggat	aatctgacac	480
ataaatatgg	ttgtgaaaca	atattgagag	gagtgcgaag	cgtccatttg	aataatttct	540
atatttgccg	agtcgggtgc	ggtaaaaaag	atgaataaac	ttttcttctc	ttcggcataa	600
gacaactaaa	aagaaaccga	ga				622

(2) INFORMATION FOR SEQ ID NO:1139

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 567 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1139

ggccggtcct	gtctgttggg	cgatggccgg	cataccgcac	aggatgagga	tgccaatgat	60
aatagcgatt	tggtcatacg	ttggtcgggt	atcgaatcaa	tgagtgagat	gaggacaaaa	120
gagccaatgg	gcgaatatgc	cggcgacagt	ccgccgatcg	catgtgctcc	gatcgctgtg	180
gtgatgaggc	ggcgggtctt	agactgtcga	gcatggccgt	gtgcgtactg	aggaagccgc	240
tccagacata	cccatggcgg	tgaaaacggc	tactgcattg	ccgtccagga	tacctgcgcc	300
gagaagttgg	gtaccagtcc	gagggctgca	ccgactgctc	cgacgcggtg	atcggggaagg	360
cgatgaggcg	ggaatcgggt	aagccgaaga	gcagcggaag	aggaagtcca	ccttgctcggc	420
aagggccggc	agcaggccga	cccttcgtat	gccttgccgg	cgaaggtgcc	gtcgggtccg	480
gcaggtccgt	ggtgagcatc	ataacggccg	tactgatgat	gagtacgccg	gggatgatgc	540
gataccgag	tctacacccg	tcttgcc				567

(2) INFORMATION FOR SEQ ID NO:1140

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 561 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...561

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1140

```

ccgaagatac aggcttttgcg cttcaatggc agccgtatta cgaactatga atggaaagct   60
cctcttttggc cggctctggct gccctgatgg ggcacgaacc atcacggtct gttgtatcat   120
cgcaggcagg aaatccgaaa agatgaaacc tcctatcagg gaagtataga gggccttata   180
gatttggttc tggaactatc tgatagaaat aagttacctt tgtgaaccaa ggtttttccc   240
cctcgacgaa tggtctccgat cgtgtcgggt atgcagcaga gcaagcaagt tgctcagggg   300
gaatataaat taggaagttt ttgcatgaac atactcgaac tttggaacaa gaagtcgtac   360
gccgtaacag cttagagcaa cctgcgtaat tggggatcga tccatatact gcagcgggaat   420
ataccgtcaa tgctatttcc gcgagatcaa aaggaatttc aatgggcatg gaagaatgtc   480
gccaaacgtc agtaagcatt gccggacgta ttatgagccg ccgtatcatg gggaaagctc   540
attcatggag ctgcaagatg c

```

(2) INFORMATION FOR SEQ ID NO:1141

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 815 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...815

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1141

```

ttcatgagca acgatgctgc ccgtggaaag ggaaatgata gtcgctcaat tgggtgcaag   60
gatcaaaccg tcgatattct tgggatcgaa taccatgagt tcgaagaggt cttgtgccgc   120
acggatggcc aaataggaag ctctcttttc ttgtctcgaa ggatccgacg ctctttgatc   180
cccacacggg tcatgaccat tcgtcattgg tatcaaccat tttttccaga tcgtcattgg   240
taatacatct tcaggagat agggcccaac ggctgttata gccgcgttta ttttttcata   300
atcgaatttg ttgcataatg gacgggcacc ggcccttttt aaaaccatat cccgccggaa   360
aagattattt gtggccgcta aaataaaaaa aagtcccaaa gaacaggtct aagggactct   420
tttgtcgtt cttgccgcct agcgacgacc ggcatcgacc gagggcaagc aattttttaca   480
ctgccacttc ttttcgattg ccaacttacc gcggtagtag ccacaatcac cacatactgg   540
tgatagatgt gccatgctcc acaattagga cacttggtcca aagtcggcta acggctttgt   600
catgagttct ccgcttggtg gttctcgttt tggactgctt cttttaggat gtgccatttt   660
tattttattt aattgttctt tttgttcaat agttttccaa gagaatccca cctcgaatcg   720
tgagcggtea taccgattct tctgttgctt catcggtcat tatcgccagc agatcggaca   780
ttcgttcata atctcggggt cgcactotca tccga

```

(2) INFORMATION FOR SEQ ID NO:1142

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 668 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...668

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1142

cggggctttc	cgtagagatc	aaagccttct	atggggggcaa	tctctaccta	tgttttaccaa	60
aaagacttat	acggatgttc	gactggtggg	agcacctcca	ccagcattgg	caaattcggg	120
gccgatacgg	acaactggat	ctggcctgtc	atactggcga	cttctccatc	ttcogtatct	180
atgcggacaa	gaatggaatc	ccgcaccata	ctctgaagat	aatgttccgc	tcaagccgaa	240
gcgttcttca	atatctccct	tggtggagta	caagagaacg	actacgccat	gatatggggt	300
tccccggtac	tacgcaccgc	tatttcacgg	cttcogaagt	agagaatgga	aaagcatcga	360
caacgatatt	cgcacccgca	tgcgtgatat	tctcagggtg	tcatgctcag	ggaaatgctg	420
gccgatcctc	agatcaaaat	ctgtattcag	ctaaatatgc	cgcttcgcag	aatgcttaca	480
aacgtgctat	ggtgccaaact	gggcgatcaa	gacacgcggc	ctgcgtcaaa	acaaacaggg	540
atgcaggaca	ggctgatcgc	atggggagcg	aagcagggta	ctcctcgaat	gaagagccgt	600
acacgaaatc	gatgctacgt	aggccaagcc	gtgcggactt	gcgcgcgtcgt	tattggatga	660
tagaagaa						668

(2) INFORMATION FOR SEQ ID NO:1143

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 525 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1143

cggattttcc	ggaattgctg	tcagaagtcg	agacgatagt	ctactccgga	ctcgaatcaa	60
tatcgactac	ttcatcaacg	aggtcatgga	cgaggatctt	tggaagatat	attcgagtat	120
ttcaaagaat	ccacgacaga	ctctttgagg	aggctatgca	agaactcggg	aaggactatt	180
cggaggaaga	gattcgttgg	tacggatcaa	gttcttatcc	gaaatggcaa	actaatgcat	240
cagttatgat	gctataatac	ggtacgaaag	atgaaaaaga	atggaatgcg	catcgcataa	300
tcatgttgct	gttgctctac	tgggcactcc	cctcaatggg	acaaagaacc	gtggatcgac	360
gaagtcgtat	ggatggtggg	gagacgaacc	gatctgcgct	cagacataga	ggctacaaaa	420
acgttttttg	ctcagttcgg	gcgccctctt	gagggaatgc	agactgctat	attcctgagc	480
agattgccgt	caaaagcttt	ttctcaatca	agccaagatg	gacag		525

(2) INFORMATION FOR SEQ ID NO:1144

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 375 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...375

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1144

catgaaacgc tctctaaaag gagaaataag cgtgggcgaa gggtagcaaa caacaaatgc	60
cgatgctgat ctttttcagt cggacagtcg gggcaaaggc aaaggagaac ggaaagcaag	120
atgatcaaat tcatgagtat cgccagcgca gtagtggcaa ctgctactat ctctccaatg	180
gcaatcaggc actgctatcg atgcaggcat tccattaaga agcatttcca aagccctcaa	240
agatctcagc tccccatcga aggtaatgtc gtaggtgtat tggtcacaca tgacatgccg	300
accacattcg aactatcggc tgccctgggag aaaaattcca cctcccgtat ttgctacgga	360
aagagtacat aacgg	375

(2) INFORMATION FOR SEQ ID NO:1145

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 510 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1145

atgccattcg ggcgatgtaa tatgggagaa ctggtctttg ccacagaggc ttgcgcaagg	60
caatggaaact acgtcccag tttgagacct gttattattg actgaagcat tgcttcgacg	120
ccatctcagc gaagaagcgt tggctcaatg aatttactcc ttgaggaagt tccgatgcat	180
acagcaaccc tgctcaccgt gctaagttga ggttagaaca aaatgatccg tcccagcac	240
ttgagactgt ggtaccggta tcgaatctac atccgaattg gaggaacaag ctctttcctc	300
tattacggag cctccgccat gaaggacatg aaaaacctca agaatgccct ttgcctgctc	360
aaacaggcca tcgaaaaaaa atgatgcctt catccggcca gactccttcg agcgcgcata	420

ctcattgact tggagcgcta taagaagcca cccaggattt ggattgggtg gcagcattcc 480
gatccggaag ggaacaggtg cctatgctcc 510

(2) INFORMATION FOR SEQ ID NO:1146

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 490 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...490

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1146

gtttggtagc accttgatta gaaacgtgat tggccggctt tgttcccttc gaaaactaca 60
tgtaggtgga gtacacctcg atcgaagagg cacaccataa caaccctgt tcggcgtaag 120
aaaacgcaa tgtattcgtt ccccgatagc gggttacaca ctaagatctt gggagttata 180
ggttattccg ttcaggaatt gtataggggg caatcctgct tctgcccgga tcgaaccaac 240
attgaattcg gattgctttt ttgaccgaat gttgcagtcc gtacaggaag atggctatac 300
cacaaggcag atggcggtnc accgtagagg ataacgggct atccgtacag ctcttcgagc 360
taccgctgta gagctcggcg aggtacgctc taagcgtagc gagccgagcc gtaagagttc 420
cgctccggga gccgtaagaa gtggccgagc tgagcccgta gagcgcagct cggtagcgtc 480
taacggcgta 490

(2) INFORMATION FOR SEQ ID NO:1147

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1147

cccagctgat acacgtcgtt ctgacgatag ggaacatcct tgatcttgta cagatctcga 60

gcgttctgtc	caagtcattg	gcctgatag	cacaaacccc	gagaagaacc	ctaccatcat	120
agagttggaa	tcctgtgcag	agatttcgga	acagcagcaa	acatcggcag	ctccttgatt	180
tgcattgaact	gatcgaggct	tcgagagcgt	tcttatagtc	tttcttctcc	atgtagtaac	240
caccgcattg	atatagtaaa	gatgattacc	cttgagagat	tcattgatctt	cttttgaact	300
tgggctttac	cttacccttt	tgatcaggca	tattgtccaa	ctgtcggcct	tcaaataaaa	360
cggcaaaatg	cgcagcaaag	catcgttcat	caagcacgat	cgggtcctg	attcacagtt	420
tgcttgagat	tctctggatg	taaagagtct	ctcttccacc	tgaccggcca	caaaccaagt	480
cttggcatcg	tcacgtctcg	gggttcttca	tggttccacc	gatccagcgt	acgagctcg	539

(2) INFORMATION FOR SEQ ID NO:1148

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 988 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...988

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1148

gaaaactatc	ccgaggacaa	gaccggaaga	gaatggcagc	cgtgaaacat	ccggaaagat	60
gagtctgccg	gcgtacatac	gattactttc	gctcgcgact	gtacatagag	aaggaggatt	120
tcattggagga	tgctcccaag	taatatcccg	aatgacgccc	gggcaggaag	tacgcttgaa	180
gagttcttac	atagtcgttg	tacgggatgc	aaaaaggacg	aggacggaaa	cgctcgtggaa	240
gtatagccga	atacgatccg	ctgacgctgt	ccggtatgcc	tgagagcaac	cgcaagtaaa	300
gggtaccatc	cattgggtat	cggcacagca	cagtctgccg	gcaagggtacg	actgtacgat	360
cgtctcttca	ctgacgaaaa	cccgtcggac	ataaagacaa	gacactggcc	gagatgctga	420
acccggatcc	tctcaagggtg	caaaaaactg	ccgagtagag	cctttcctcg	cggatgccgc	480
tccgggatcg	acttccagtt	ccagcgcata	ggttacttca	cgggtggatcc	ggatagtcgc	540
cgggggcatt	ggttttcaac	cgcacggttt	cgttgaaaga	ttcttggcga	aagcccaaaa	600
gaacgcataa	aggacattat	ttatctcact	cgcaccttgg	gatttattca	gtggtgcctc	660
gcgcacctga	actattggac	tatcattttt	tgatggccat	cgagagttcg	tttattccgt	720
tcccgtcaga	gattatgtgc	ccccggctgc	atggatggct	gccacggggc	aaaatggact	780
gaacttttcc	tcgttatcct	gttcgccacc	atcggtgccg	gaataggagc	tgcgtaaact	840
atatactgtc	tctattgctc	ggtcgcccta	tcgtctacgc	gttgccaaca	gtaagctcgg	900
gcatttggtg	ctgatcaacg	aagaagaaag	tcgatatgca	gagcgatatt	tcgacaagaa	960
cggagctgtc	tccacactgg	aggacggt				988

(2) INFORMATION FOR SEQ ID NO:1149

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 557 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1149

cagactcacc	gatgtgcata	cgatgctcgg	tcgatgcgcc	aatgaacaag	gcgaacggaa	60
acagccatat	cccattctgcg	ctatgccata	gaatacgaag	cggcaacagc	gaggcctgcc	120
tgctccttgc	tcaatgcttt	gaaaagaag	caaccgcacc	ggtgcgatcc	acatgtaccg	180
gcgtgtcctc	gacaagaaag	agcaagtacg	gcgaaaaacg	acatagaggg	cttcgcccga	240
ttggcgaaag	acggagcagg	ctatccctcc	tgaaagccga	cgattcggag	gacgggaaac	300
cgcccgtaga	cattacgtat	atacattcat	tctccggaac	gatcgaaatg	gagacaatca	360
ttggcgaaca	tattgttttg	tgctcattgc	caatttttac	atccccatac	ggctactttg	420
attataggaa	gtttcgactg	gatccttcgt	gcggtttctt	ctcaccgaca	acttccgaca	480
acgaccggtt	acactcctcg	aaaaggaagc	gcagaatccc	attttgggga	gattaatggg	540
ttttggctac	tttggtta					557

(2) INFORMATION FOR SEQ ID NO:1150

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1076 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1076

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1150

cggccaaggt	tttgaagaa	gaacgaatca	cccctaccct	acaatcgatc	gagatacggg	60
catacgcatc	cgcaattcca	agttgccgga	tccggccaaa	taggcaatgc	gggcagcttc	120
ttcgtaaaac	cgggtgggata	cgccgagaat	tcaataccct	gcaaaccgaa	tatccctcca	180
taccaagcta	tcctcaccgg	atggcagcgt	gaaagttccg	gccggatggc	tgatcgagca	240
atgcgataca	aagggcatcg	ctccgggtca	gtagggtgtct	atgagcatca	ggcttgggtct	300
tggtgaacta	tggcggagct	acgggcactc	aggtgggagc	tttgcaagaag	agatcatagg	360
caatgtccga	cagaaattcg	gaatcactct	cctccggagg	tcaaatacat	tttataatat	420
caagtagcaa	gcctttttgcc	ccatgcgttg	catattatta	ggctcaggca	ccagcaccgg	480
cgtccccgaa	tcggctgtca	ttgtagggtta	tgtcgtagcg	aagacaggca	tgacaagcga	540
cccgtacttc	tctttttata	atcacggatg	cagggaaacg	aatcctcacg	actgcagccc	600
ggactttcgc	caacaagctc	tgtttgccgg	catcgatcgc	tcgatgccgt	tttgctgact	660
cacgaacatt	ttgaccacgt	cgggtggctcg	acgatctgcg	caccatctgt	tggcatcgcg	720
aacttgctgt	ctatgcgaac	agaatgtatt	ggactccata	cgcgacaggc	tgcaactatgt	780
attcgcaaaa	atccttatcc	gggcactcct	ctactgaaac	tatgccgaag	taaacccgat	840

691

tgccggtttca agtggcagac ctgacggtag agcctcttcg aaaatgcatg gncaggttgc	900
cgatactcgg atataaaata ggagnagatg gtttccttac cgatatgaag ggatatagca	960
gcagaagaat tcgagtgcct aaaaggctgt cgacttcttt ttatcaacgg gcttcgctac	1020
cgaagggaac atccttcgca ccagaccata gacgaggcta ttgacacaat aggaca	1076

(2) INFORMATION FOR SEQ ID NO:1151

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 467 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1151

cccgatgaatg taccggagag attgatggcg aagtgcctcg taggaagtag gtagcaacga	60
aatagccgta cagattcgga gtgcgtacat agtctttcca gagatctcgg cttgtcccg	120
tgttttgtcc gcttccacag cggatataatg ctcccgtagc ggcttctctg ccatgtaccg	180
ccgagctgga ggtcgacgat ttgtttagg cgattcttcc ctccagattc acaccatata	240
ccttcatact ccattcctgt cgtttagat ggtacgaatg atccattctt tgcctcgctc	300
ggtggtttcg accttatcgg atggtttgaa ctgattgctg ataagggtgga gaaggcttct	360
cccatgatat tgaattgccg attcgtcggc tctgtgggta ataatcgaaa gaagcactga	420
tgccttcgtg gaacgttctt cttcagattg gggggaaaag acacgct	467

(2) INFORMATION FOR SEQ ID NO:1152

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 543 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...543

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1152

cgcgaaaaggc	gcgatatttta	tcgcacatat	gttcgccaac	tactggattg	ggacgggcat	60
atatcgccctt	cgatacgccg	gaggaactgg	aagctcgga	gccgaggtgc	ccaacttcca	120
atacgatgcc	actactcgtg	ggcaaactgc	aactctctga	cactgcctgc	cgaagaagtg	180
gagcgtctcg	ttgccggggg	acgcagtatg	tggttcgttt	cctcgtggag	ccgaatttgg	240
acgtaaagtg	aacgacctga	ttcgcggacg	agtgggtgatc	aactcttcca	tcctgatgac	300
aaggtgctgt	ataaaaagtgc	cgacgacttg	cccacctacc	atcgggtcaa	tattcgtgga	360
cgaccattct	gatggaaaagt	gagccatgtg	atcgtgggtga	aggagtgggt	gcccagtgac	420
accactttca	tggtactgct	caatcgtgct	tttcggttgg	gaagatacga	atgccgagat	480
ttgccatttt	gcactggctg	cttgaagccc	gaaggaaacc	ggtaagctgg	agccaaacgg	540
atg						543

(2) INFORMATION FOR SEQ ID NO:1153

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1119 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1119

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1153

cgggcggggca	tgcccggcaa	tgccggcgat	tttccctcgg	aagaaacatc	tacaccttta	60
tcgagccggc	tctctgcttc	tttacggccg	agacgaacac	cgcagctcgc	tttcaaccctt	120
cggcatacaaa	ctgtccgacc	gcctgacggc	aaaccgctcc	atctcgatat	ttcggacttg	180
ccgatgaaac	gogggatatac	acgaaccgca	acaaatttgt	cctgggaccg	tcgggttcgg	240
gaaaacggtt	ttcatgaacc	atctcgtacg	gcagtattac	gaacagggaa	cgcagtgttg	300
ctggctcgata	cgggcaactc	ctaccaggga	ctttgttcgc	tcaccaccgg	aaaacgaaaag	360
gtgaagacgg	catctatttt	acctatacgg	aaaggagccg	atttcgttca	atccttttta	420
taccgatgac	ggggtgttcg	agtcgaaaag	aaagacagta	tcaaaacgct	gcttttgacg	480
ctctggaaaa	cgaagaggaa	aaaatatcga	aaaccgaatc	ggcgagctc	ggcagcgctt	540
ctcggcctat	atccgcctga	tcggttcgga	cagagggata	acgccgagtt	caatacgttt	600
tacgaattca	tgccgcgatac	ctaccggccg	gaactggaaa	ccgcgagatc	aaagtcagcc	660
gggaagattt	caatatcgac	aacttttgac	tacgctccgc	cagtactacc	ggggcggtcg	720
tttcgacttc	ctgctaattc	ggacaaaaac	atcgacctcc	tgctgaagcg	gtttatcgtc	780
ttcgaatcga	tgccatcaag	gaaaaccggg	aacttttccc	cgtggtaacc	atctcatcat	840
ggaggctttc	atcaataaga	tgaggcgact	caaaggcggt	cgaacaact	gatcgtcgag	900
gaagcctgga	aagcgatcgc	ctcggccaat	aggccgacta	cctgaagtat	atgtacaaaa	960
cggtgcgcaa	gtatttcggg	aggcaatcgt	ggtgacgcag	gaggtggacg	acatcatctc	1020
ttcgccggtg	taaaggagag	catcatcaac	aattcggatt	gcaagattct	tctcgaccgc	1080
gcaagtatgc	caacaaattc	gaccagatac	agaacctcc			1119

(2) INFORMATION FOR SEQ ID NO:1154

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 855 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...855

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1154

ttctgccgaa	gagaccaatc	ttatgggcga	cctgatgcaa	tggactggaa	gaggaaacat	60
ccacattcaa	accgttctgc	atctcaacaa	aggagatgca	atgctcgtgg	acacataggc	120
acagaactga	acaacaaacg	gaaagtgcct	gctcatcacc	aaggacaaca	gtgatgctga	180
caggagcggt	gtctcacgtc	catcattcgc	tctaagcctt	tccctccctt	tgcgtttagg	240
ctcacgaagt	agacaacatc	tgcttacgcg	agttagacac	agacttcacg	gccaagacgc	300
acagcctttc	tctaccaag	aactaagtgg	tgaggagcat	cgccagcctt	gcgagaagcc	360
tttggccagg	cgtgtgagtt	gggctatggc	gactattgaa	gcgactcagc	tcatacatact	420
taggtgtcag	tggtcgacct	ttggacagac	gaagctcaaa	gaattgctcc	gctttctcgt	480
gaacaaacgt	tgctcgtcaa	ggctagcaga	ggacgctatc	agttcaaccc	agacttccat	540
actgacacat	cggttcggtc	gggcgcaggc	tatatatgcc	tgaccaacga	ccaaccataa	600
ataaagaatg	gtcggacgga	aggagtgcct	atagtaacgt	ccgaccgacc	aaagaagaac	660
cgccaaagaa	aaaacagcat	gcagctcagc	acatcaagca	agtctccatc	gtggactact	720
tagcacaagc	tggcttgaag	caaagctcat	caagggcggtg	aactattggt	attgctcccc	780
tctagctcag	agctcacgcc	ttcgtttaaa	gtcaatgcag	agcgcaacca	atgtatgact	840
tcgccacagg	agacc					855

(2) INFORMATION FOR SEQ ID NO:1155

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2555 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2555

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1155

attgtaaatg	aagctataag	tcccaaacga	tgataatcac	cgggaatgaa	aagccggtct	60
tcgccttacc	caagatgttg	tatgagggat	tgacaaggga	ttgcgagtaa	tgctcgtagt	120
gaatgtaatc	ttatccaaac	gacctttttc	gccagtttct	cgaagacgat	acgagtcaag	180
aagacagccg	taatgaagaa	gcgataagac	cgataatcaa	cgtagtggca	aaaccgcgaa	240
tcggcccgtc	ccgtagagga	ataggatgat	accggttaata	atagtcgtaa	cgttgagtcg	300

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aagatggcag agaaagcggt gccataacca tccgtaacgg cacaatcgga gtcttaccgg 360
cacgaagctc ttctttgata cgctcgaaga tagtacgttg gcatccacag ccatacccag 420
cgtcagcacc aaacctgcga tcccagagagg gtcagcacgg catggaaaga agccaatacg 480
cccaatgtga gaagctgttt acaatcaatg cgccgtttgc gataagaccc ggcaagaaac 540
gtaagccaga cacatgtaac acatcaggat aaccaaagcg agcaggaaga caagaatccg 600
gctttaatgg actcggcacc cagcgtagga ccaatcagtt ttctgttcg atgcttaccg 660
tagcatccat tttaccggag ttgagtcgtt ggcaaggtea cgggctcct ccacggtgaa 720
gtgcccggag atctggagcg accgcccgtg atctcatcat tcacgttcgg agcagaataa 780
accaaccatc caaaacgata gcgattgccc gtcccacgtt atcctttgtg atagcgccca 840
tttacgagca ccttcttcat tcctcgtcat cgaaacgatc ggtcggaaacg accgaagtca 900
ttttggatat cactcttggc ggaagtcact aatcacctcc caaatcagga tctcccgtac 960
gattggtacg aatagcatag gtctgtagag gtcgggtctcc tttttggttt cgggggtctt 1020
gattgctttg caccocagag gaaaagcaca tcttcacgtg taaccttcag atcgtgagtt 1080
gctggagcat ttcagatata tgagccatat tagcacgacg agccacacca ctactgcacc 1140
gccacgattc acgggagtaa gcagagagaa gagtgcctctt tacgagtagc atccttggcc 1200
tctttttgtg ctacagtagc agaatagcta cagcttgtag agcagcagaa tcggctgttg 1260
cagctacaga gtcatagttg caggctctgt ttccggggta gcatccgtgt tgttcatagc 1320
caatcgctca gacgatcatt ggcagcgatc aagtctccgc tgacctcttc gatttgatg 1380
tacgccagaa ctgtagggtt gcaactgcgtt gcaaaagggt agaacacgct cagggtcttt 1440
cactccgggg agttcgacaa ggatacgccc tgccttcca atcgctgcaa attagggtgca 1500
accacaccga aagcatcgaa cgagcacgga gcacattgaa cgaagcttct acagcactat 1560
tatattttct ttgagcagac gcactacgtc tgcattccgt gactttgcgg taatctgtcg 1620
cgaaggtcac ccgaaccgaa gataacggcc aagcgaccgt tgggatgagc ttgcgatatt 1680
ccttcacgaa aatatcgatg aagtcggatt gctcctgctc ttggcagcat tctccagagc 1740
tttgttgaag ttgggatcca aactttgtta gagaggttac gaagcagatc gcttgcgtta 1800
agtttcaaga taagttcata ccccccttta agtcaaggcc aagaccaatt tgctgggctt 1860
gacttctttc agcgtgtagc cgaaccagac cttctcattc gacatggaat cagataggcc 1920
attccggcaa catcgcccat cgccatagcct ctttcgtaac gttcgtaacg aaagagaatg 1980
acaggtaaaa cgcacagatg atggccagac cgatgtgata acaatcncaa atcctttgtt 2040
ttgcattttg tctgttacta ttttattgtt agattttttt catctataca ggcatattca 2100
tagggcgaaa gttacgtttt tttttacact atctctcact ttatatatag aaaataccga 2160
tgattcgggt catcggcagc aaaaacagtg ggacattgcc tcggtcagca aatgattggg 2220
tggctctata accaagagcc acagcaagga tactcagcct acccacttcc gagctgcttt 2280
aagagcgatt ttocgaaagc gattatggca aaggcttctg cttcatatgg aaagagcaaa 2340
cctgccggta gcaaggcgac ggaaaaggct ctgcgcagcc gtattggggc tatacgtatc 2400
ttgcgtatgc aagtgcctcc ttgttcgca gctatcgtct cggcagagaa agcatggcag 2460
cggcataccc cttgcggagc agagaggaat gaacaccag cgggtgtatcg tataggcttt 2520
cccttcggtc tgccatggca acgagccgat tcgggc 2555

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(2) INFORMATION FOR SEQ ID NO:1156

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 555 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...555

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1156

ccggccttga	tcgtcgaatc	catgcgtcat	ctcgtgtccg	atcactacgc	gataccgcc	60
taattgacag	catcgtctgc	atccatgttg	aagaaagggg	ttggaggatg	gctgcaggaa	120
aacaaatttc	gtttgtgggc	ggattgtgta	ggcattgaca	tcctgaggat	tcacagcca	180
acgctcgoga	tctacatctt	gccgagggtca	gccatattgt	cgtcatgcat	ccatttgctg	240
gcgcgttgat	atcggcataa	tagctgtctc	ccttgatttc	catcttgga	tagttttcca	300
cttgtcggga	taacccgata	ttgatgatga	aggaattgag	tttcctgag	ctttcatctt	360
cgtgggagtc	gcccattccat	gtaagcatgt	tgtacgctct	ccgagggccg	tttgcagggt	420
cttgacgagt	ttgagcatgc	gtcttttgc	tcgggtgggg	aaagtattgc	ttacataaa	480
cttcgccag	gcttcgccca	gaaagctgct	taccatacct	acggaacggt	tccagcgaga	540
tgctttcggt	ggttc					555

(2) INFORMATION FOR SEQ ID NO:1157

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1157

cgagcctctg	cctgcctcta	ttctggcttt	gcccagacaaa	cgcggcgtga	agacaaagta	60
attaccttcc	tgggacgaat	cacgatgcag	aaaggcccga	atacttcgtc	gaagcagcgg	120
ccaaagtact	cgaacgcaca	tccgacgacg	cttcgtaatg	gccggaaacg	gcgacatgat	180
ggacgccatg	atcaggtggc	tgcccagacac	aagatagccg	accgcttcca	cttcacagga	240
tttataaagg	cgaacaggtg	tacgaggtat	ttaaggcaag	cgatgtctat	gtgagccatc	300
cgtntccgag	ccattcggca	tctctccact	cgaagccatg	caagcggagt	ccccttcatt	360
atttccaaac	agagcggatg	tgccgagatt	ctgattacgc	catcaaagtg	ggactattgg	420
gacattcgat	gccatg					436

(2) INFORMATION FOR SEQ ID NO:1158

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 466 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...466

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1158

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cgcaaagcgg aatccctcgg cggagatctg tccgaaatag cctgtttgct agcatggccg      60
cctcggcacg ccttttggtc aatccgcaag aacgctggag acatatggag cagagagcag      120
ccgacagttg gctgtcgccc ttgaagcaac cctgctaata cgcgagccta cttcctgcag      180
gccc aaagcc tgcgtgcacc cctgcgcagt tcggaggggg caaggacaag gccctccctt      240
ttgccagaag agcgtgtcct gctatgctgc ggccacagtg tcgcctgcct atgcccgaac      300
tggggagagc atctaagcac gccaaactcct taatgctttg caagcagnaa acccaagagt      360
gactttgcgg ccatcggtct cctgatcgag aactctataa cctgcaatct tcgaaaacac      420
gaaccgaaat cgttccgatt gggcaccgtg ttttctgaga aaatgg                      466

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(2) INFORMATION FOR SEQ ID NO:1159

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1159

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tctanaggat ccccggggatc attccgcaag gggatgggca aacactatcc tgagtgtctca      60
gaccaatgga aagtactatc agcagtatag tgtcacatta tggatccatg gtttgggggc      120
aagcggcccc gatatgttca gcttcaggca ttctattoca agactacggc gattgactcc      180
aagttctaca atagcatgcc ggcaactact ataatgccta ctataatagc tactacaaca      240
actatatagt tattacaacg gtatgtcgaa ctataccggc gacctctata ctcagccagc      300
gatccccgat cgttcgcttc agatgttagg tacttcgatc ggtacggtaa agcgtttgac      360
ttggccggac aattggttcc agatttatac tttctgaact acacctacta tagactgcga      420
aattggagct acaatacctt caaaatttcc atcatggctc gctaatgata tcaacttgga      480
gcctgcgtct tctcgactct ccatcgataa tcctatttat accagagccg gatcggatta      540
tggttttctg gtgctgctac tottcocttat tctttgtggg acaatcatac tatgccagcc      600
agaacttc                                           608

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(2) INFORMATION FOR SEQ ID NO:1160

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 520 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...520

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1160

ctgcactctg acttctctct ttctatacgg tcattaggtg gatttcatgg gcctatacag	60
gtatgtacca tcgcgtggca tgtggacaaa ggagatatat tccatgagga gtaagcacga	120
ataggcattc gatagcttct ataacgttaa ggcacccacc cgattctttc ataaatcaga	180
tgggtgcctc tgtttttcag cttacaatat ggcattttgg gggctgcgat tgatatacaa	240
atcatttcga tttctatata tattgaaaac gatttatata taaatggaaa atggttatat	300
atagatcggt attcgatata acgagaaaagg tatttcaatc tgaaaaggag tatttccatc	360
tcttttgtat cataaccaga cttcttagag ccgcttattt ggaatgattc taaactcctc	420
ttcgcgtgtg aaaacttttt tgcacctatt ttctggtcac aataccgatt ttcttaagtt	480
gtttttaagg ctaaagatcc ttctctcttt cagcctgcag	520

(2) INFORMATION FOR SEQ ID NO:1161

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 507 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1161

gtcatcggca ttgggttttc cgcccggcca gccggtgatg gtgtgctggt gtcggtgaag	60
agcttgatgt tcacctcgta ggccgagccg tatttggcag caattcgccc aatccgttct	120
ccgtatagtc cttgttcgtc agcttcagat gggcttgccg gtcagtcgcc acagccatac	180
cacagccctg cgtatggctg tttgttccag atacagctcg tcaccagcca aggacgactg	240
atcctgtgag acaagacgat gccgatagat ccagcacgat ggaggcattg cgatcaattg	300
cagggacgaa gccggagaag cctcgcaaatt ctttccctcg ataactgggc tattacctct	360
gccttactct ctccccatgc cagcagggtc acttgtgagc tttttggatg gtagccagtc	420
ccatactgat agccgatggg ggatggtgtc gtgggagctg aatatcgtca gagcatcggt	480
gtgctccgta ggccgagtag gacgagt	507

(2) INFORMATION FOR SEQ ID NO:1162

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 620 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...620

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1162

ctccttccag	tcttgatctt	tgatgaaacc	cagacgctca	agctgtttgg	gtaataagcg	60
tagttataaa	tggtagccat	cgtacccagc	tggtcgaacc	ttcgataagc	atcccttcgt	120
gggccatatac	ggtgaaaccc	attggccttg	cagcatatcc	atcccccttg	agcgtgcccc	180
ttcggatacg	gcatggaaag	ggcatctacg	acttcattgt	cgttgatgaa	atcgacgaac	240
ccgaacgagc	gttgttctga	ttccaagttt	cattggcacg	gtgattgac	atacggcgat	300
gcgtcccacg	atccgcccct	cacgataagc	caagaaatag	atgcttcgca	gaactcaaaa	360
gccggattgc	ggtctttgtc	caaggatcatc	attcatcatc	gatcagcccc	ggcacatggt	420
agggattatt	tctatagaga	ttatattgaa	ctgaacgaat	ttcttcagct	cggtttgtc	480
caatacttct	ttatttctac	agccataaaa	ctcgtattta	gtttacctaa	gtagtcaaag	540
ttacaccgga	ttttggacct	ttcacgcaca	aatataactg	aaatagttat	cattttattg	600
ataaaatctg	catctactgg					620

(2) INFORMATION FOR SEQ ID NO:1163

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 558 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1163

ggttcaaact	ggccaatatg	tacgtacagg	ccggagagat	agacaaggca	tatacatata	60
caaccgtatg	gaggcacaaa	atgctgtcaa	tgcagcagtg	cctccaacta	tgctgagatt	120
cgggcacgtc	tctacctgat	gaccggtaga	ccaacaaggc	totgaacgaa	cttcgccgctc	180
tatgcaatcg	attcccgaag	tgaatgagtt	taggetgaag	tatgccggca	ctctgctcga	240
cagtggaagt	acgacgaagc	ctacgagcaa	ctgcaactga	tagctcggac	ggatcgacaa	300
gtggcttgta	tcattttgct	atggccagct	attacttggg	aacaacgaaa	aagaagctgc	360

catcaacgaa atgatcaaag tagcccgctg acaggggatg tggcaccgg agcagaaact	420
acccgatcat cctgcgcttt acgggtaccg acacagacga agagggatgc accgaaaaaa	480
ggagtataat tctgcttga aaagatactt gccagccatc cacttgaggt gggatgcacc	540
cttttctatg ccgagctc	558

(2) INFORMATION FOR SEQ ID NO:1164

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 915 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...915

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1164

ggataactaat ggtctcatac gagaggatac tatggtctat tgatggaagt gctatctgct	60
ctctgnccgg atggcaggtt cggggagaga ggttcgcttg agctgtaaaa ccctgtcgca	120
cggcattttt ttggagattt cattgtcatt gactgatttt tcagtgtcgt tatagatatg	180
aatacctcta aagctctcca tgacttgtgc gttacgctca taagtacagt caaaaagcaaa	240
aaagtgcctt ttgattggcg actttttcag tttgcatatg aaggcaaacg cgataagaga	300
gagcggaata tcaactccacg gctatcgtaa taagatgata gtcaggggga tgccaccaaa	360
agagaacttc tgttttggga acagtttata cgccccgcgg aaagtgggga tgctgatatg	420
gtatttcacc gagacgaacc gacagccacg acaataaagg cagcaatgaa ctgtatgatt	480
tcgatcgga agtcgtgtac atgagtccca catagaccgc tcctccgac aggcacgcct	540
ggcatatata tccttgcgga aaataagcgg cgtctgattg atcagaattc ccgaatcata	600
ccaccgaacg accctgtaat cgtacccatc gcaatggcag ccaccacgca tatccgcact	660
cgaaagtttt agccacaccc actatgtgaa caagcctatc ccgacagtat cgaaaatgaa	720
aaccgtatga ttcagcgtac tacatacttc cgaaatacaa tcgtgaagat gaagagcgag	780
cataagataa aaaggtagga aggccggagc attcaaaacg gcgggacatt aagaaaatgt	840
cgcgcacctg accggcacca acagccggaa ccacaccgac caataggctt cgaaccaatc	900
gaagcgctcg gcttg	915

(2) INFORMATION FOR SEQ ID NO:1165

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 407 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...407

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1165

```

ntaaaggatc ccccgatca gattgagaaa ctcttcgcga gtggtcgac ctcaaaagct      60
cctgtaaagt cactggtcgt agtcagagag ttttgctttc cactccacgc atctgcatgc      120
acatgtgctg tgcttcgata acgacgacac cccgagaggg ttcagcgat tctggatgca      180
ctccttgatt tgtgtatcag ccgttcctgt acctgaagac gacgggcaaa tacatcgacc      240
actcgggcaa cttgctcagt ccggttatat accgattggg gatatagccc acatggcctt      300
accgaagaac ggcaacatgt ggtgctcaca cattgaaaag aaacgatgtc cttgacgatg      360
accatttgcg gatagtcttc ttcgaacatt gcgcgcgaag gatggct      407

```

(2) INFORMATION FOR SEQ ID NO:1166

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 517 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...517

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1166

```

gtgaatagct ccacgattcg catctgttcc gttcogtget catcgacaag gttttgtatg      60
cttcgtaggg ttcgcgcccg aagtggccgt atgtgcgctc tcttcgtata tcggattgcg      120
gagtttcagt cgttgctcga tggcgtagga cgcatacoga aaatcttctt gatctttctc      180
gctatttggc catccgtaga gccacatgac tccggccttt cgtattgacg tatatgctta      240
ccggcctgct acaccgatgg cataggctac ctgtacaagc atttcgtcgg ccaccccgct      300
gccaccatgt ttttggctat gtgtcgggcg gcataagccg cgggcgatct accttgacg      360
ggtccttgcc ggaaaatgct cctccgcat gaaagccctg cctcataagt atccacgatg      420
atctttcgtc ccgtcagccc ggtctccatg tggccctcct atcacaaact taccgtagg      480
attgacgaat ggcgtacctt ttcgtcgaa tagggct      517

```

(2) INFORMATION FOR SEQ ID NO:1167

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 668 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...668

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1167

ctcctcggt	tagccctcta	tgcaactgat	gaanacgcat	tcaacaggat	ttacgcccct	60
tcttaacgat	ggaaaacctc	ctgaccatag	ccgaaggctg	ttacttgtag	gtatactgat	120
ctctgccttt	tcggcacgtg	ctgcaacaac	aaatatatcc	gcatggatgg	aggcaaaatg	180
cacctcgat	aaggcaggaa	tattgacaaa	ccaactaaga	caatcaaaca	gcatactatg	240
cttttgggaa	aaagaacttt	atcttgatgg	gggtgtccgc	tatcctcatc	attcgggctt	300
catattgatg	tcagggggag	gatcagccga	ccaagtaagc	ttcatccgga	tattttcagt	360
gccaaacgca	tacagatagc	accgtgggtg	agatggccgg	cttcgtactg	atgggtatatg	420
ccatcatggt	atcgccggat	aaaaagacaa	tcgcaagtaa	ctctccggcg	agggtccttc	480
tgccgatcag	ccgcaaccgc	acgttggtgg	ggagtaattc	tatgcctgat	ccgagaaggt	540
gtacctctct	tcttgcata	taatatgacc	attctacaag	ctcatcgta	gccatagtcg	600
aaggctgacc	gagttcttcc	ggttcttcaa	cggacactga	tatcgccgaa	gcataatggg	660
gtggaaag						668

(2) INFORMATION FOR SEQ ID NO:1168

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 387 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...387

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1168

eggcaaatcc	actttgttta	caatagggat	gatggtcagg	tcgttttcgt	cgccatatag	60
agattggata	tggtctgcgc	ctgtatccct	tgggcagctc	gacgataagc	aatgcccctt	120
cgcaagcagc	aatggagcga	gagacttgta	ggagaagtcc	acgtgccccg	gagtatcgat	180
caggttgagc	acatactttc	tccatccatc	tcatagtcca	tctgaatggc	atggctcttg	240
gatcgtatac	ctctcttctc	gttccaagtc	cattattgtc	caagacctgg	atctgccaag	300
atctttgccg	gagaccgggtg	gttggtatat	tcgagcaacc	cgacggccaa	ggtactcttt	360
gcccgtggtc	gaatatgtgc	aatgatg				387

(2) INFORMATION FOR SEQ ID NO:1169

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 562 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...562
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1169

aggatccccg	aaacgtttgt	aggcaaaaat	acctgccaca	atgataaaaac	gcccagaata	60
accaagccga	ttttggtcat	gttcttttct	atgaactgtc	tgagcgtgaa	accacttctc	120
ctacgtgggt	gtcccggttg	ttgatttctt	ttttagccat	attatggaat	aattatttat	180
ttcttttcgg	tcgcacaagg	tacgcgtttg	gctgtgatat	acaaatgtcc	tgtccgaata	240
aatatcgata	tgtaatggtt	gatcgaaaac	gtttcttctc	ttcttgctc	caattccgat	300
ttacttgtct	tctcttgagc	cgtcaggtag	ccgaaaagag	agcattgcca	atccactaat	360
ccgctcttta	cggcataccg	tatcagttcg	gcgcattggg	gaatcccagt	ttgtgcagaa	420
tattactacc	ggtgtgtttc	tccgttcggg	aactaaagg	gcattttttc	ggctgnttct	480
ttggcagaat	gccatcgac	agatattgga	ctactctttt	ctctcgttgg	gtcaagctca	540
gaagtcggtt	ctgctgctgt	gc				562

(2) INFORMATION FOR SEQ ID NO:1170

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 658 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...658
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1170

cggattgttg	taaaataaaa	agattaggaa	acggatattt	tccggtgaga	cctactttct	60
gtagattgt	aagcagttta	tattaaatcg	tatagtga	aggctgtttg	tgagatgata	120
aaacgtaggc	acccgtcaaa	ttcgtagaga	attcgacggg	tgccattatta	gtttggagga	180
tgagcgagga	ctattgattt	gaaaatttat	gctgttgctt	tgtctttttc	tttttcagga	240
ctgttcatta	gaaatcggat	gatgttttgg	cagggtttct	gagggcattt	atcttttgca	300
gagcattgaa	tgagacctgt	tgccggatgt	ggaatccaaa	gatctatagc	catcttttcg	360
ttctatctca	cgtcggcttt	cgtgtaaagg	aaattgcgaa	tttagtttgc	ttgaaaagca	420
gtggttttga	gcaatattcg	actgtcgatt	caggcttata	ttcttcgctc	attacactat	480


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atcgatcaca agctaaaggg attgtaccgg ctctaagccc tttaggggat tgaacttttc 540
cttacatttg tccgcgatga agctctctat gaggagttag atatcgcttc ctgagagcct 600
ttcatccgaa tgaaattata tagataacga ttaaagttag ttagatatgt gctgcgaa 658

```

(2) INFORMATION FOR SEQ ID NO:1171

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 649 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...649

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1171

```

cgcgaaaccga cccgtcgcaa tacggcaccc tgcacgcgat atgccagctt cacattttacg 60
cgcgcaatcc caaagccaac ataatcgtag ctccctcgat catctgatcc tgcgcgaaga 120
cgaattcggt cgtgctgcat cggaagcttg gagttcgtag ccgatcacga gcatctcgtg 180
acgctcggca tccgtcatcc cgtccggaga cgggctatgg atatatccaa atggctgaag 240
aaaagccggg gatttttatcc gtgtgaaaac ctttacggag aagcccaatg ccgaatggca 300
agcatcttcc tcgccagtgg agaattcctg tggaaatagtg gaagttcgta tggaacgtgg 360
agagcatcct tgccgcattc cgcaagcacc tgcggaagta acctcttctc tcgaaaatgg 420
cttggcacac ttcaatacac cgaagagcgg cgtttcatcg atcaggcttt cccctactgt 480
ccgagcattt catcgacttt ggcgtgatgg agaaggcgga caatgtcttg gtcatgccct 540
ggacttcggc tgggcagacc tcggcacatg gggatctctc tatgagctgc acagaaagac 600
gatgccggaa acgcatcgct caagacgcgg acgctctcta cgaggccga 649

```

(2) INFORMATION FOR SEQ ID NO:1172

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 808 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...808

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1172

```

cgctggcgaa gtagatctta cctcttacct cttctgttct gccaatgtct tgcagataca      60
ttggcaccgc tcataacagg agggatgcaa aaaatagcgc caacagaaaag agaagagagg      120
actacatcga gactctcgga gaagggctag accttatctc tacgttattg ttgctaccgg      180
caatatatat gaagacttgt tcaagcacia gcagctgctc gccaaaggagc cgatattatt      240
gccgtatacg tactacggga cagagtttgc tcgactatgt tccttacgga gctagacaga      300
aggattcggg ggtacttttg ctacacaaga aaacttccgt atctgcgaaa agccttggtat      360
gaggttggag aagaggttgg tcgatataat agctctgcaa ctattgttca ggtctttgca      420
tgccggaaat agccgtaatg gagcactcga aggcttggtat gtaatgctca atgatgctct      480
ctatggaatt ttttccgaga cattaatatg caacgtactt tgggtggatca atacatgagc      540
gtgttatcaa tggatttgcc ggcgttatca tcaataccgg tgaggatact acctaaccac      600
tgctgatgcc gtagaagaag cacataccgt acttgcccgg atttgatcaa tgagcagctg      660
gctcttacag ccggattgcc ttcagacaga tggggcttgg acatgcattt gaaatggatc      720
ccatgctcga gaatgattcc ttttcgaatt ggctcaagca caaatgacca gagaaatttt      780
cccaagctcc gcttaagtat atgcctcc                                     808

```

(2) INFORMATION FOR SEQ ID NO:1173

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 317 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...317

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1173

```

cgcgccctgag ttttgagacg gctgtgaacc gcctcggagg ccgtatcatg gtttttcgga      60
tgcattccacc tccagctcta cgaaaggcga atcgctcagg ataccatttc catggtgggc      120
aactatgccg atctgattat tatgcgcact atctggaagg ggcggctcgt tatgcttcgg      180
aggtaagccg tgtgccgtag tcaacgccgg cgatggagcc aaccagcatc cttcacagac      240
tttatggatc totattccat tcgcaaaaaca cagggcacgc tgtatgacag gacttcgcta      300
tggtagggga totcaag                                     317

```

(2) INFORMATION FOR SEQ ID NO:1174

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1552 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1552

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1174

```

ggaagtctgt tatgctgggt gcgaagtacc ttgacgtatt tccgtagctt gcagagagtt      60
taagaaaata cttgttcccta acgtccctcaa tgatttgaat gagtcctctc gtagctatct      120
tgaccgttat cgtctatttc gtcttccttt cggattttcc tttgtcacgg gccgcaaagc      180
ggataatgcc ggcttcttgt gggcaatcgc aaatccccgt ggtacatggt ggctttttgcc      240
atgatggctc cggatatatc ggagtaacct tcgtatccgt gccgggcatg gtggcggcag      300
cggattctcc tacctgcaga tggtaactgg ctttgtggcc ggaaactgat tattgccttc      360
gtcctgatcc ctctcttcta ccggatgaat ctatgtccat ttacggctac ttgcaagagc      420
ggttcggatt ctcgtccctac agacgggggc atggtttttc ttcattctcca agatgctcgg      480
tgcggctgtc ggctttttct cgtatgcctg acgtcccaac tgatcgtatt cgaaccgttg      540
gatggccttt tatggccaat gtgtgcctga cgtatctctt cgtctggcat atacgttcaa      600
gggcggagta aaatcctgat ctggaccgat tcgttcagac cctctgcctc atcgtctcgg      660
tcgtactctg catcgtctat atttctccga cttggggcag agatggggag gggcgaccga      720
ccttatcggc gggaggacta ctcccgtatg tttttcttcg atgacgtgaa cgacaaacgc      780
tattcttcaa gcagtttctg gcaggcgtat tcaccgtaat agctatgacg gggatggatca      840
ggacatgatg cagcgcgaatc tgagctgcaa gaactaccgc gatcgcagaa gaacgtcctc      900
accggcggcg tgatgcagtt cttcatcata gactcttctt catgctcggg accctgctct      960
aatacctatg ccgacagcca ggcatccccc atccgtccaa agcgatgagc tattcccact      1020
cttggccacg gcagctattt tccgcctggt gtaggcattc tgttcatatt gggactgggt      1080
cgtcggcttt ctctgcaagc cggttcggcc ctgacggctc tgactactcg ttcacgctgg      1140
acatcctcca agcacacagc caccgaagcg aagagcatcg gctcgtatac gccatcgcgt      1200
gcacatcggc atggtctgtc tcatgggctg gtcataact tctttaatat ggtaagcaac      1260
acgagcgtca tcgagccgtc tacgtactgg ccagttacac ttatggggccg atattgggac      1320
tgttttcttc ggcacgcgca ccaaaagggc agtacgggac agatacgtcc cttggcagcc      1380
cttggttctc cgggtgctctg ctacattctc cagagccatt cgagcaatgg ttcggcgggt      1440
ataaattcag ttacgaactc ctcatcttca tgcttcttt accgccatag gcctggcatt      1500
gttgagccgg aaaaaagaat acgatcatga ttctgattgg agacagcggg tc              1552

```

(2) INFORMATION FOR SEQ ID NO:1175

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 508 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...508

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1175

```

ttgagggcag gatctctgcc cagacggatg ctctctgcca aggatgccat ctacaccggc      60

```

agaaagtccg	agtgagatcg	ccggagctac	gaaaactttg	ccggcctttc	tgcgtaagg	120
actttctgct	tctctgtcga	aacgctgatt	gcgatccgat	tctacccag	cgagcaaagc	180
tcgattgaa	ggtcgtttca	ggttcattgcc	gaaagcgctg	gtacgttcta	ctgtcttgcc	240
ttcaagtcca	tctgccggtt	gatgtatcta	ttcccggtag	aaagagaaat	gacctgctct	300
ccagagttcc	ttctgttttc	ttggtcagct	tgtagtgtga	gccgtaggat	cgcggaagat	360
cagatcgctg	atccaatagc	ctaattctcc	gacaatatcc	ctacggcagc	tccgcaaagc	420
acatcgctgg	cccaatgccg	atgttcacga	tacggctgat	ccccgtaagg	gagggtacgg	480
tatagcctgc	gcgctatacc	aagggtt				508

(2) INFORMATION FOR SEQ ID NO:1176

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 692 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...692

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1176

ggcaatactt	atcacctcta	tctccgtccc	ggattggatg	tgctcaagct	gccggagggt	60
tgcacaagtt	caatagctgg	gagcggcctt	tgctcacgat	agcggagggt	ttcagggtgtt	120
ctctttggcg	gagaatcgga	agatcacgag	gagggtgcga	ctttccgttc	ccatatagac	180
ggctccaagc	acctttttca	cccgaaaggg	tcattggacat	ccagcgcgtt	atcggagcgg	240
acatctcatg	gctttcgatg	aatgttgccc	cggatgatgc	gaccgcgaat	atgccgcctg	300
tcgatgctcc	tgaccggaag	gtggttgagg	cgttgccctgt	gtaaatgcgc	gagacggagc	360
cactctatgg	atatgaacag	cagctattcc	cctcgtgcag	ggatgcattc	atcccgatct	420
gcgcgcgcgg	tccggccgaga	tgtagctgcc	gtcgatgctg	ccggaaatgc	catcggagga	480
ttggccgtgg	agaaccgacg	gaaaagatgt	acgagatgat	cgaactgacc	aacgagatct	540
tcccaaagat	cgtccgcgct	acctcatggg	ggtagggtact	ccgatcaaat	attggaagcg	600
atagaccgtg	gtgtggacat	gttcgactgc	atcatgttac	gcgcaacggc	cgtaatgggc	660
agctctttac	ctgcacggac	catcaaatcc	ga			692

(2) INFORMATION FOR SEQ ID NO:1177

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 992 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1177

```

gagagaggag attcatacgc tctgtcactc tcctattcaa tttgcgttct gaccactccc      60
actatactct cttccggcac aataccgaga tggcgggatac gggtcggctc gcaggattgt      120
ccgccagaat ccagtagtaa ttgcggcgaa atggaagaaa gccgtttcgg caccgtcgcg      180
gtagagtttt cctcgggaaa gctgatgttc gaactgcact cttcttcgat tgctctgcgg      240
taggcagtaa agacagagga gtcaggcgat aagtcctgtc attcctcgga acgaaatttt      300
atatggctca cgaggaagca aagaggtggg caacttcagt tttgcctgtt tgcgactacc      360
ccaccctttg atagaaacaa ggtgtcaccg ggaatcctat cagccgtgcc agatagaatc      420
gcgagtcggc ttcccatctt ttctgtactt tatgaccaga atatctcccc tgtccggcga      480
tgcaatccga tgatccatag cagctttccg gaccggtagg tcgggagcat ggcatcgctc      540
gaacacgata ggtagtaaca aggaagagac gaatgaggac ggccgacaca gaacgactgc      600
cggcaagcca atgaaaaaaa ttctgtttct ataccgcatt taatctgcat tgaccgttcg      660
catcattcta ccgaagcgga tcttactccg aagagactct tgtccttatt cagggacaac      720
cagatgaata caggctaccg acgatatgat cctccggcac gaaaccccaa tagcggctat      780
ctgcgagttg tgcgatttat ccccatcat gaaataatag tccatcttga agggtaggaa      840
tcggccggac ggccgttgat gaagaaccgt gccgtcagct tttgcacgag cttatttcct      900
tcgaaattgc gaatacaacg actgtacaag gcagattcaa tggcgtcaaa cgaaccgtca      960
tgcccttggg ccggatcacg taggaccgta tt

```

(2) INFORMATION FOR SEQ ID NO:1178

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 558 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1178

```

cgcccgacac actgtaaaat gaatggatca aagtgcctgc ttattgcoga aggtctcata      60
cgtattgatt accttcgttc gtaaaacagt aaaatttaag gcgaaatgga tttgtactgg      120
ctaatacatca tcgtcgcaat agttgccgac tcgtcgatg gctcttccat cgcaggcaca      180
acactgagac agatagctga cagcacaact ggaggctgcc actgagaagc tggcggatct      240
gcaagggagc agaaagaagc catccgtatt cgtaccgaac tggagacacg cttgaggcaa      300
ccacttccga attggaacgc gaatggaaac gtcgggaca aattccgaag agatgcaagc      360
actcttcaag gccacggcat cggagatcct cgagacaaga cacggaagct ttccggaatg      420
aacgaagagc gcacgcgtga atactcaaac cgctgagtga acacatcaag ctattcgaag      480
aaaaagtcga aagagctata atgaagaagc gcgcgaacgt ttctctctcg ccaaagagca      540
caaaagctca tcgaacag

```

(2) INFORMATION FOR SEQ ID NO:1179

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1179

```

cccagcatga agaccataat cttggccatg ctggcgcgta tcgacgcag agcatatcgc      60
ctgccgagac gaggttggtc aggttcagga tacggaagtc ctcagcagtc gaaggatgcg      120
gaagaccatc agcacctgtg ctccgcttag acaagggcta tataggaggg aagtatggag      180
atgaggtcta tgatgcgtaa aaggaaagga tgtaccgcca cggtttatga aggcagtaga      240
tccgcggatg tattcgatgg tgaatacaat ggtgataacc cactcgcacc aatgaaaaaa      300
ttccctcgtg ctatgggaca ggccttacgg tactttctgc tgaacgacaa tgacgctcaa      360
gaaaggatga ggcatagcag gagaatttcg aaaagcggtc c                      401

```

(2) INFORMATION FOR SEQ ID NO:1180

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 789 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1180

```

gacgcaattc ttccaaagca tcggcttcag ccataaggct attttctctg cctaacgcgc      60
cagatcatct tcctgattcc ctgtttgctg attatccccg attcatgggg ttggacggcg      120
tgtggtggag tctgccgatc agcgatcggc ctccgtcgtt ttgtcttttg tgctaattac      180
catacagatg aagcattcaa tcaatcgaaa aaaactactt tcgcggagta attgccttac      240
aaaacgaatc cttttcatga ctcagataat cttaccggaa cgatgaaagt attttcgaag      300
cctttctcct acaatatctc ctgaccctct acatcgcata ccgggaggac aggcctacc      360
gcaaaagagc ctttggcgca aaggttttca cctctgatgg gtgtagtatt caccctgtat      420

```

ctaataagggt	ttgccggcaa	cgggttttgc	ccgatgccgt	gatgagctgc	attatgtctg	480
tcacaggctt	tggtttgtca	tgtccattta	tgccatgttt	gccatggtga	tcgtagagat	540
gccgtgtcg	tggaacaagc	tttcctgcac	agattcgaca	ggctgtccaa	agagtgcagg	600
ctcgcatccg	attggggctg	ttcgttctca	taggttttcc	tcggctttac	tcgtgataca	660
tggactgaat	atcgtgcgct	atcccgtgta	aagcatatgg	acattcgtct	ggacagacct	720
gccatagatg	gaaggagtcc	atgaaagtag	ccctgctcac	ggatattcat	attagcgaaa	780
cggtacggc						789

(2) INFORMATION FOR SEQ ID NO:1181

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1438 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1438

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1181

ctgaagaaaa	acgccttctg	tataattgct	atcggggcct	tgtcgatag	gagcactact	60
ccccacagag	aaaaaagacc	ggctgcgtac	cctgtccgag	agatgagtat	ggcctcattg	120
acattcggac	agaatgtget	caaggacaga	aacgctacaa	actccacctc	agcgatccgg	180
cggctgtggc	cgggatcccg	agacggctct	cgctctcgct	tcggagaaa	cccgccgaaa	240
gggcttacgg	agggttggct	tttogacctt	tctgctccga	gctactttgc	tttttgaagc	300
attgtcccg	tgggaacctg	cgccggcaga	tgtatgaagc	gaaatgtgtg	tcggcttcgt	360
agacaatgag	tataacaacg	aagctctgat	cctagaatgg	taaacggccg	tctcgaggag	420
gcacaactcc	tgggttacga	tccttcgccc	actttgctct	tcatgacagg	atggccaaga	480
accccaaggc	gtccaagaac	tactggacaa	actactggat	gcatacaagc	ccaaagcgaa	540
gatgaattgg	agatgatccg	caaattggcc	tgccgacaag	acatccgagt	cgataacttc	600
acgatacaac	catgggattg	ggcatacttc	tcggaacgta	caaacaggcc	cactacgata	660
tggacgatga	cgatgagcgc	cgtactcga	attagggoga	gtcacacgtg	gtatcttcgg	720
cttgccaac	cgacttacgg	acttcatttc	tccgaacgga	cggatgtgcc	ggctctatcat	780
ccggtgtaaa	ggtgtacgaa	gtatcggacg	aagacggctc	ttatatcggt	ctgtctacac	840
ggattttctt	ccacgcgaag	gcaagcaaac	ggagcatgga	tgacaacctc	cgggaccagt	900
ccgaacatca	gcacccgcac	atcatcatcg	tatgaacttc	acccctcctt	cggcggacaa	960
accctcgctc	ctgacagcag	tgagggtggag	actttcctgc	acgagttcgg	ccatgccctg	1020
catggcatgt	gtccaaatgc	cgcttcagct	ccttgctcgg	cacctcggta	gcccgatgatt	1080
cgtggaactt	cccagccaaa	taatggaaaa	ctggctgaca	gagaaagttt	tctcgacacc	1140
tttggccgcc	attatataac	ggacgaacct	atgcctccga	attggtggaa	aaactcctct	1200
cggcacgaaa	ttacctcgca	gcaaggggtg	atgccgtcag	ctcagcttcg	gctatctcga	1260
catggcatgg	catgattgtc	tgctccgggt	gatgacaaat	tagacatcaa	ggcttttgaa	1320
gagctgcttg	gtcaaaaagct	cttattctac	ctccttcgcc	cccgaatgcc	gtatgagcac	1380
ggccttcggt	catatattct	cgggaggcta	tgacgccgga	tctatggtta	caaatggg	1438

(2) INFORMATION FOR SEQ ID NO:1182

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 364 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...364

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1182

gctgaaaccg ataagttgtg tccttcgcgg gaaacgggaa gcatagtgcc gtgcagatac	60
tcgaaccaac ggatggtgta agcagtaatc tcacggattt cttttccagt tcggcaatat	120
ccttttcgag ctgaagcatc atggcctgtg cttgggcaaa ttgaagcgga ggatccgtgc	180
catgcgtatt tccaacactt cttcagatcg tcgtaggtaa tggggcgaaat aaaacgatgg	240
gcatagggttc cagcctngcc tctacatgca tgagagcatc ctgttcgctc tcggctcttc	300
gaactcacga tctttataga tacgctcttc tatgaaaate cgccgagcga tgctgccaaa	360
tact	364

(2) INFORMATION FOR SEQ ID NO:1183

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 486 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...486

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1183

tgtggcgcgat attccctgaa aaagtggcgc gagaattttt tcgttggtggg tgagaatttt	60
ttgcttccca cgccaaaata aaaaagttta cgaaccgctt ttgaggagta gcaaacggga	120
aaatttttga gcttaaacca attcgggtata atagtacatg ttcttgatct tcttttctga	180
aaaggcttga taggatgagg gaactgttcc ttttttcttt tgctttgatt cggctgttag	240
tgaacatgaa aagagaaaaa gaagaagcct cttgcgcaga caaccgagcg gttctggcag	300
aggcttccct atgtattggt gcaaagtgca cccatggagt tctaataccg agattctaca	360
atatcccgat caacgatact ccaaagatct ttaggtgggc ggcacgacga ttctggtaag	420
tcagataata tgcgtgctcc aacgtcgaat ccgagcaaaag gatcaaccct tgcgcacggg	480
attgcc	486

(2) INFORMATION FOR SEQ ID NO:1184

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 441 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...441

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1184

```

gtagaacaga agactgattc gaaaagctcc tgatggaagt gaccacagag gttcgatccg      60
tctgtagat gctcttcgtg aagcagctca aatcttgaat cccacttctc tctgtttgca      120
gagaataaga tagcgataga gtatgtgata tagtcgatac tgatgagttc gatgaagatt      180
ctctgcatat gcgtcactat tgaagtcaaa gctttcaggt cttgacctgt ctgttcgtgc      240
cctcattgtc tgaatgcagc cggagtagat acgttgggcg atttagtgag tctgcacgga      300
gcgatctgat gaagattcgc aacttcggaa agaagtcttt gacgagcttg acgaactgct      360
ggcaacgctg aatttgcgt ttgggatgga tacagtaagt ataaattaga taaagactaa      420
gaacgatgag acatatagga a                                     441

```

(2) INFORMATION FOR SEQ ID NO:1185

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1185

```

nccgcagtct ggggctggcc atccacagca tccgcaaaga gccgcggctg attttcccta      60
tatgggctat cgtttcagcg aggacgaaaa agcgacgcgc tgcattcggg caatctgggg      120
aaacaggttg agctgacccc caaaaacgcg aacccttcaa aggctacgtc tcaatcgacc      180
cgttgacctg tgagctgtcg cccttcgtgc cgaccgcgtg atcattccgc aagagattaa      240
aagcgcttgc tgaccgaaca gcagcatcgg gacctgaccg aaggtaagcc cgtgaaagta      300
gaaggatatg tctcgcgtgg cggcaaaccg ttcgatgccg cgctcagggtc aatgccgaga      360

```

aaagaggcat tcgagtttat cttcaacgac aactttcctt caaagaacgc aggcaactct 420
ctcaaaagcc cgcaggcaga ttcc 445

(2) INFORMATION FOR SEQ ID NO:1186

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 508 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...508

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1186

aggatccccg	ggcacaatca	ttaaaagaat	cctgcacaaa	cgacttgcg	aaacaaatcg	60
ctcatgcagg	atgcaacttt	ttcctatcga	cctctctcta	gggaacgatc	actttggctg	120
tgctgtcacc	ggctcgtaca	acgtataacc	ggatgcaact	gcaatgtcat	gatctgcaag	180
cacggcagca	ttgtaatccg	atgtccttgc	atatacgtaca	cctgaacaga	tgtgcccgcga	240
ggagccccgc	aatgaatata	cgaccggcag	tagcccaaat	acggatctca	tgggaatggg	300
agcggccaga	gagggtatta	ccggtttggt	gtctttgagg	tacgccaacc	gttgtttgcg	360
tcgtttgcct	gaagccaggg	agcaggatta	ttatctgcat	tgagcttggc	agccatatct	420
ggcagtcctc	attgccgttt	cggcatacct	tgcgatggca	ggtatttcga	ctcccgtatc	480
ctatgccgac	atacctgggt	tttgttcg				508

(2) INFORMATION FOR SEQ ID NO:1187

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 605 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1187

ccccgcactc ttgagcaggt catagtcgat cgctcgctatc aaagacatac cgtaggagta 60

gctttgagat	tcttcttctc	tttataaatg	tagttgcgtt	gaagagagtc	tcaatgatgg	120
ctgctcgcgt	agacggccgg	ccgatgcatt	ttctttgagg	gcacgcgga	gctcttcgtc	180
cttgaccgac	ttgccgccgt	ctccatggca	cgcaggagtg	tagcttcggt	atagaatttg	240
ggcgggtgtg	cgttttctcc	tgcacctcgg	gggtgtgtac	tccactttcg	ccctggagaa	300
tattggcagt	tttttctcct	cgctcttggt	ctctccatca	tcgccgttgg	cggatcgggtg	360
aaagacaagt	gccgccagcc	cgggcttcca	agatctgttt	cccccggtgg	ttttgaactc	420
taccttagct	gcttgtccca	gccgtggtct	ggctgaatat	gcagtcgga	tagaaaacgg	480
ctataaatcg	cgggccacca	gatcgaatac	cacgtcgtc	atcctccgac	ataccatgga	540
tggctgaccg	gtgggaatga	tgcattggtg	tcaagtgate	ttgctatttc	gaatacctct	600
gcttt						605

(2) INFORMATION FOR SEQ ID NO:1188

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 668 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...668

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1188

tgtactcctt	ccacggattg	cacttcgccc	tcttcgcgtc	ggatgggatg	ccatgcgggt	60
cgaaaagcgg	atggcccagg	cggactgcta	tccgctccgc	tcttcacg	acagatagtg	120
ctcctccttg	caggcttgtg	tatgccatcg	ctgggttcat	agccggagt	ttcggacaga	180
tacttttcca	aaagccgtgg	cggcgaatca	ccttgagcgc	atatttcggt	ccgctttcgg	240
tcagagcgag	tccggaggca	ggcagtagcc	ttgtttgtgc	agcagatcga	gtattactgt	300
tggttgctta	tcttcagccc	ggtcagggt	gccagtcggt	ctgattgacg	ggcagaccgt	360
cttcttccaa	agaatagata	gctttgagcg	tacttcggac	agacggcgta	catcgaagcg	420
aaacagaaga	ttcgagaata	attcatgctt	ctataacttc	tattattacc	gaaagtgggc	480
ggtctgttgg	ctgtggcaca	acgttttcag	tatgacaaaa	gtgcttattt	tatcgaagat	540
ccgcaaactg	caggctctct	gggctattta	cctgcattga	gtatccgggc	ggagtgtctc	600
tacaagacgg	ttccatttct	tcttgactat	tcggcatgac	gactgaaatc	gtccaaaaag	660
tttcacac						668

(2) INFORMATION FOR SEQ ID NO:1189

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 620 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...620

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1189

```

tgcagctcga ctctanagga tcccctggat gatattgcag ccggtcgcag tacatgaaag      60
tgtacaagca gatgaaaatg tacaacgac ccactcttat ccgattcttt tgggcaagaa      120
gtagaaagcg accgttcccc gcattcacat tccttcctta cggacaactg ccgtttcccc      180
gttttttacc tttctgcgtt ctcccatggc tcgatatctg atagtcgcgt tgtcggcaat      240
aggcgtgtgg caatgacaat accggttttg tatgcggtag ccaaggcata cccaagcata      300
gtttcacact gctgactcag cctttcctga catcgctact aataaccctc cgaacaattt      360
ggaagggatg gggatcgaca tcaagcacga aggtcttctt tggtcggtct tcttacctat      420
atcggacgac tcaaggatga acagttcgac tatgtcatcg acctacacaa tgtaatacgt      480
tccaaaatca tcgcttctat cttcgctttt tcoggagtca aagggttcaa gtctgaagaa      540
ccgcgactac agcttcggca gcttacgggc aagccacca aaaagccacc cgatgccttc      600
cgtaatataga cgatcgctca

```

(2) INFORMATION FOR SEQ ID NO:1190

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 482 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...482

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1190

```

cgaggtaagt accttccaat tcttggcctt ggccatttcc acgtgttcgt tgtacacacg      60
ttctctctct ctctctcttc atcgtcgttg taaggaaaca cctgccttct ccttcagtga      120
tcgtaggcag gctttcgatc aatgcacat ggcggtatct ttgatccggt tggagtagca      180
attcaacggt gtcagttcgg cgtttttgac agatccagag cagtcagctg gttgttgctg      240
cattgagtgc tatcagattg gcgttggcag atacatctaa cttcgtcagc ttatgccgtt      300
gcagaaaagc cactccaaag ctctgtgttg cggagagatc gattttgtca gctcgttggt      360
gaagaagctt agagtcgtca gcttggtatt ggcgagagat tgagggcggt cagctgattg      420
gtgttgcatg tggagtattt cgctctttgt tggctgcgac attcagagtc ggtcatctta      480
tt

```

(2) INFORMATION FOR SEQ ID NO:1191

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 551 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...551

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1191

tgaagttgca gtcctcggtc atatacctaa tgatataggg gaggggatcg atcggtttgc	60
tccctctcga agagaggttt ctgtcccgtt tcgggtctgct tatgagaatt attcgaagca	120
gtcgttggcg ggtttaaggt gtttcattac ctttgcgctg caatgcaatc ataaagactg	180
ttttctccat gttggaaagc tcattattct ggatttcggg tctcaaacca cacagctcat	240
cgccaacgaa ttgcgcagct gaacacctac tgcgaggttt atccctacaa caaatgccgg	300
aagacctcta aggagtgcga ggcacatcc tgctggggag ccctattccg tgtatgacag	360
caaggcttct gtatcgaaat gagccgaatt acggccaagt tgcctctctt tgggtatctg	420
ttacggtgca cagagccttg tcatcaagcc cggtgcaaag tagaagccgt gcgacagtcg	480
cgaatacggg gaacacatct gaccctcggc agcctgatga tgcaactgctg acaggcctga	540
atccggccta c	551

(2) INFORMATION FOR SEQ ID NO:1192

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 360 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...360

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1192

cccggtctacg atctgacgca tcatagaacg ggccgaattg cctcccaaag gctgaagctg	60
tcaaaatcca tcgccaatat aaagtaggca tagaatacac ggaggcaacc agattacttt	120
gcagatccgt ctattatat tcgatggatc gaactggttg tattcgaagt tcagttcctg	180
atctcgccaa ataagcgagg agaaaaatag gaggaattgt aaatagggcg acgagaagta	240
acaaaagtgc ggccttgat tgactttcgt ctttcacttc ggtaagggtg atggaaaggt	300
gcagtcgata cgctctgcaa aactgaatgt ggccgtttgt ccacgagtca ggtttgagga	
360	

(2) INFORMATION FOR SEQ ID NO:1193

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 403 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...403

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1193

tatttttttgg	ggcgatatta	tcctgaaaga	ctttaatgag	atagacaaaa	cctcgtatcg	60
gccaaagcct	tatacagcaa	tctgaaagac	tttcgggaat	ggagaacgat	ttctcatttt	120
tgagcgaaag	acaggtagca	gccattccag	tttttgggaa	tcctttttctc	cagcaagcgg	180
ccaaatggag	aatggagtea	gcagagtttt	ctggatttct	ggaagctatt	gtccccgctt	240
tacatcggtt	caaccaacgt	cttgacagacc	aaggcaacgg	ataccatggg	atgaccttcg	300
ccatacagtt	gatcgctcc	ggcaaagaga	aacatcggta	cgaagctgct	ctcatctgca	360
gacagagggg	ggaatgcaca	tcctgataaa	tagtctttgg	cgg		403

(2) INFORMATION FOR SEQ ID NO:1194

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 467 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1194

ccgaagaatc	gaggggaaag	tgcttctcta	tcaatatctt	ccatccttga	tattgcaaaa	60
ataagtctga	aagtcggaat	aaccacaaaa	taaggaggta	cttatccgga	aatcagtaaa	120
aaataaaata	atcagagcag	tgtcaaagag	aaaacctccg	acacagccct	gattatatcg	180
tttgaggcta	tttacctgtg	gaactattcc	gatgggtgctt	cttcatttgc	cggttcggct	240
gtgggacgga	aaggaaactc	ttacgctcgg	ctgtcgcctt	ttcgtaatcg	tcacatgcat	300
aacgacgagc	ttctcgtaat	cgcgcaaacc	agtaccggcc	ggatggagggt	gaccgcagat	360
aacgttttct	tcagtccttc	caggtaggtc	agcttaccac	agatagctgc	ttcattcagc	420

accttggggtt gtctcttggga agaggcccgcc gggacatgaa gctcttg

467

(2) INFORMATION FOR SEQ ID NO:1195

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1195

gctgaaggaa caatgcgccc aattatcgaa tgggacacga acaaaccact ggattcattc	60
ccgaacatac gcatacctac aatgtcatcg gtaatgtgac gaacaccaag tggctattgc	120
cgagacgaca tggggcggac gtcccgattg gccgaaagtg atggtatcat ggactatggc	180
agcctgatct atgtggtctc cagcgttcta agacagctcg tgaggctata gacgtcataa	240
ccaattggta aaggaatacg gctaccatag cagtggcgaa agtttttagt ttgcgataag	300
aacgaagttt ggattcttga gatgatcggc aagggttaagg ggccaaagggt gctgtgtggg	360
cagctgtgcg cattccggac aatgctatta gtcacatgcc aatcaagctc gcattccagca	420
gatcgatttc aagagtaaag atatctctat tctcccgatg tcgtttcatt tgcccgtgag	480
atgggattct ccaaggaaca gacaaggatt ttagcttcca agaagcatat aacccttatc	540
gaangtggtc ttcgtggttg tgaagcctcg tgtatgggct ttctcaatag ttcaatcgca	600
tatgggtaag tatgaagctt ttatacggaa	630

(2) INFORMATION FOR SEQ ID NO:1196

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1196

ggcgtacgat	ctgttagagg	aataacgcgc	agcaagggg	aggaaaggag	gaaggaaaag	60
gagaaaagagg	aatagagaga	aaagcaaaat	gattttttgag	agagagaaaa	taaaaaagga	120
gagagcctcg	gatttcgagac	tctctcctac	ctttttttcc	ggggaggagg	gtggagatcc	180
tatccccccc	tctctccacg	cttcttaaaa	aacggcgcg	tcctactctc	ccactgtgac	240
gcagtccatc	ggcaccgttg	ggcttaactt	ctctgttcgg	aatgggaaga	ggttgatccc	300
caacgttata	accacctgaa	tacttcgaaa	aggcaatcga	cattcgaaaag	gccaacaaat	360
aattcctcaa	gctttgcggc	aacaaaccaa	ccataccgca	tccttcggga	tgacacaaaa	420
gtttcgggct	attaagtact	gtcggcttaa	ttgttaccaa	tcatacacct	gcagcctatc	480
aaggtcatag	ctttaaccac	cctattatgg	aaatcttatc	ttgaggccgc	ttcgtgcttg	540
atgctttcag	cacttatcc					559

(2) INFORMATION FOR SEQ ID NO:1197

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2045 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2045

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1197

ttcggtatgg	actaccgagc	aactatccgt	accggcataa	agaacgatgc	gatatggcta	60
tattcttgtg	ccgaagaggg	cttttttctg	aaaagaccga	ataccacgaa	gtgcctaagc	120
gacagatgag	gtcgccatcg	cgcaattcgt	tccttcgggg	aaggcaggta	caaaaaacct	180
ttcttttctg	ccctgcagca	tgcaactcaga	cagagcagaa	aagaaaggga	gagaatgcac	240
cgggtacgaa	tcatttaaga	cgcaaaactg	taaatccgaa	gggatgctta	tttccgatcg	300
cttcatcgac	aagccatttg	ttgtcgatat	tcaccacatg	aacgtggttg	tatcatcttc	360
gaaatccaga	taggtgaccc	aagcttcctt	ctcacatac	tatccttgat	aaaggtaaac	420
ttgtagtttg	gtttggcctc	tcgcccacaa	caccatacag	atcgacaagc	ttattggtgc	480
gttcogtgca	tacttcttag	cctcttcata	tttctgtttg	gccatgttct	ccgagaagtc	540
tttacagcat	ctttcggggc	ggacgatgaa	cagccggcca	tcaaggcacg	gcaaacaatg	600
ccgctccgat	tttccatctt	ttcatattag	aatttttctt	tttaagtatc	agttgcttag	660
caaagatagc	gaatatccct	atctcccatt	cgtgcaggtg	acaataatcg	tccgaaaaag	720
gccgaaagga	gagacaggcc	agtaaaatgt	ggagccggaa	tcaggagaaa	catggttcca	780
aaaatctgaa	aaatcgaaac	aaaacaaaaa	cttttacgtt	cgggaatttt	tttttttggc	840
cggagtcca	aaaaattccc	gaaccatggt	tttagggatg	tgtttgattg	tttttcggcg	900
catgaaaaga	aaaaatggtc	agcttcccc	tcctcttcgc	tctttttcat	ttcccccaag	960
atacaacagg	gggcgcagag	tttcggatcg	gacggattcg	atcggaact	aaatccggcc	1020
gattctgtta	accatatgag	acgaaaacct	gtcgaatggt	gccaatatgc	aatcatgatg	1080
taccttttga	acagaatcat	caacttaaaa	acagtcaatt	atgaagaaaa	aagacttttt	1140
ctactggcga	tcattgcact	atgcagcatt	catgcacaat	ggggcttgac	ctccaaaaac	1200
gagtaaaagg	gaatgagcaa	ttcgctctga	agagcgtttg	gcagagcctt	tcacagcctt	1260
tcggcatcag	gcagattgat	attcagatcg	aatactcccc	atacaggcac	ccctccgaat	1320
agagccgagt	cgaacatcat	accactaatc	aatacaacgg	taaagaaagg	tgctgaaca	1380
tcgaattcga	aaaaaaacgt	tccatatcgc	ctaagtctgc	atgcgagtta	tcgtcagtgt	1440
gccggaaata	caatcagtca	cactgggcgg	agtggcaatt	tgattttcgg	ttccggtttc	1500
aaccagccca	ccctgaaaaga	accattaacg	gtagcggcag	tataaacttc	atcgatacaa	1560
aagcggaaaa	ctggacatcg	tagtcaatgg	tagcgggtgac	cttcgcggca	gcattttgct	1620

cataaggata	tacgcatgaa	cctgaaagga	tccggcaata	tcactcttcc	atagacgaaa	1680
ccaagacgat	tcaagcta	atgaaaggaa	gtggagtatt	aagctgacag	gaaaagcttc	1740
gaacacgata	ctgagaagtt	cgggagcggg	atgttcgact	gccaaagcct	gacgactgac	1800
catgccgaca	taaaatgagc	ggaagcggag	gcggccgcct	cagtgtaacg	aagaaaaatca	1860
gctcaatcta	tcaggatccg	ccggtttcac	ctgccatgga	aaggctaaaa	tggttcttat	1920
aaaataggac	gctcttcttc	attcagtatg	caaccgtaag	ggttcccatc	ttaagccaat	1980
aaatacttnc	ctttttcgta	aacgaagaaa	gacagaagaa	ccgagaagag	tcgagttgca	2040
gcttt						2045

(2) INFORMATION FOR SEQ ID NO:1198

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 442 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...442

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1198

cggttttctt	ggttgtcata	tcgtcagatg	cgcataaaaa	agtaactcct	caaagggtata	60
ataatccgaa	cagaaaggaa	aaagccaata	gcggtactag	ctcttttata	cttgcccata	120
cattttactc	aatgatgtga	gtattttact	cagtggaaat	acaataaaga	catcggtg	180
ctatcaagca	tttacaatca	agctcttgca	agcaaacaga	agcaatgtga	ttatcccgtg	240
aaggagagat	tggtctccaa	aaaattttcg	attcatcgga	tgtgggcttt	tttgtacatt	300
gcaagccgag	gaaagctcca	cacaaaagat	aaacggctat	atacagagct	attccaccgg	360
cagaacagca	taacgaaacg	actcaatgat	cacaacatgt	actccgactt	cgctcatacg	420
accaacgcac	ccgggcagat	ct				442

(2) INFORMATION FOR SEQ ID NO:1199

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1243 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...1243

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1199

ctccccgattc	gcccataaagg	tgagcctgca	caacagttgc	cacggtgtgg	cgaactgcat	60
ctgtccaccc	ccagtgaagt	gcaccgaccg	taccacaaaa	ggtgcgccgg	ctattggaga	120
tggtgcaggg	catagaggta	ttcgagcgaa	gcgaatagac	gaatgctgcg	gtttcggcgg	180
tatgtactcg	gtggagagcc	ggaggatatcc	acctgtatgg	ggcatgacaa	ggtgctggat	240
cacattccac	aggtgcggag	tacatcacag	ggccggacag	ctcgtgcctc	atgctatgca	300
gggagtgata	gacagagaga	aattgcccga	tcaagacaat	tcagcagtag	aaatttttagc	360
agcaaactta	ttgagtacga	agcatagcga	agggctgccc	gcttttttga	gaataagtcc	420
ggagcccaag	tggcatgacg	aacgctctgg	aatggtgcgc	cacaaacgcg	acatccagcg	480
tgatacgggtg	cccagtgagg	gaaagatctg	cgccaactgg	gctcatgaaa	tcaaacgctc	540
aatgtgacac	acttggattg	agctgctgct	gcgatttgaa	gaaaatgccg	tcgcaacggt	600
gtcatcgtcc	attgggctaa	ggacgccaaag	gagcacacga	gatcctgtat	ggcattctgc	660
gtgatcatgg	cgtcaaaaaa	ttcgtgagag	caaatccatg	cttacggagg	agtgccacct	720
gaacgaatat	cttatgaaaa	gggtataaac	gtgatcgaaa	cggacctcgg	cgagcgtatc	780
cttcagctta	tgggaagagcc	accgagccac	atcgtgatgc	cggctatcca	tataaacgcg	840
aggctgtaag	cgatctattc	catgacaagt	tgggtacgga	gagggcaatt	acgaccctac	900
gtatctgaca	cgtgcagcac	gcaaaagcct	ggcgaagact	ttatcagcgc	ggatgcagca	960
atgacgggcg	gcaactttgc	gttgccctcta	caggcggaagt	ggtcgtttgc	accaatgagg	1020
gcaatgccgt	atgggtatgg	cttgtcagaa	attgaacatt	tgctctttcg	ggctggagaa	1080
ttggtacccg	acttggatgc	ccgtaggggt	attcaccoga	cttctggggc	ttcgggtaca	1140
ggacagccct	ctaccaccta	tacggacact	accgcagcct	catgaagtgg	agagctcact	1200
atatcatcgt	ggacaacgga	aggacacatc	atcgaaatga	gga		1243

(2) INFORMATION FOR SEQ ID NO:1200

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 526 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...526

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1200

ccacatcagt	tcgataaacc	cgtacatgtc	tgtacccgcg	tgctatccgc	tatcctcggg	60
gacgcgacgc	tgcgtgatca	tctcaagcgt	gtcggctgtg	cccacaagggt	gtcggggtttg	120
gaaaagtcga	tcatataaga	tcgttggtgg	caaaaagcata	gtcctttctc	tcatcgtaat	180
aaccatactc	cccataagag	aagaacggtt	caccgtatcg	gtgaggatca	tattgccgaa	240
ggcttgccaa	aaccggtagc	acggtcgtaa	aagatcgagt	cccccgtaaa	ttgctggccc	300
cgtttggagga	ataaacgatg	gagcgatcca	gcaaaatgcc	tactcgggtg	togaatcgta	360
cactcctcgc	gtagaacga	tattagccgg	agccgatctc	atctccgtag	gccccaatat	420
gtgactgatc	tttggtatc	ttattataat	gaagattctt	tcccgtgttc	atgggtatagt	480
cccttatttt	ccaaatggga	catttattct	tcggaaagaa	tggeat		526

(2) INFORMATION FOR SEQ ID NO:1201

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1201

```

acctgctcta taatacggcc tatttcctgt ggggagataa gcgatggagc cctcctccga      60
agtaaagagt gccgatcgta tcggtgactt cggcacgaga atactcatct cggcgatcag      120
tgctgtata tactccgaac gaagcgcttg ttctgtgctg aatagaagtc gcaatacgag      180
cagcgcgtgg cacagaagga atatgaatgt atagtcccg cacttgatct ccatgcttga      240
gggagggata cggggccggc cacattcatt ttgttgatgg cttggagacg tactctatcc      300
cgcgtaggtc ccactgttag ctccctgggc agcaggtagg agtgtcttcg atgcggtcag      360
ccaccagcct gtccctgcac cgcccgaggg tgccaatctt ctgaggaaga ggcggtagta      420
tactacagct gtttctccgg cgctttgtcc caactcacag cgattttgcc atctgcccg      480
cgtgtcaacc aggaatttct gcttttatgg gagcggcaaa acccttgcca agttggggag      540
ggtaccacgt cttcggcaaa tcgtcg                                566

```

(2) INFORMATION FOR SEQ ID NO:1202

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1202

```

cgaagaggaa aaatcgactg tcagcttcgt aagacatgac tcaaagcatt aggagatact      60
ccaaatcagc ttcttcgtga tagggagaga gcgacaaagt actgttcogg tagcgaaggt      120
accaatcgat cgatgcgcca acggcgccaa tgaatccccg tgcgagtgac aatgtcgaat      180
gcttcgtaca gagcatgcct atacgtgcag gtgtcagccg gtcatgcgtc agcgagcata      240
gatagcctgc tcgatcgggt cagcagcacc atacaccga agtcccggga accgtgcac      300

```

tgctgcatac actgttttcac gcgccccgac tgatacgaaa gngngaagtt ggcgaacgga	360
agccagcaaaa gcggtgaagcc caagcacatt gacgtgccgg ccataaaccg ctccggcatc	420
tccacccccca ctgtccagtc accgaatgca aaccattgca ccttggtggtc agaagggtga	480
acgcttttcgt ggtcacggat atagaat	507

(2) INFORMATION FOR SEQ ID NO:1203

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 545 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...545

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1203

cgtgccacca ccataggcgg tatagctttg ggggagatgg ggcacaggcg tcggacctgc	60
tcatacgaaa tcgtaccaca ggggtgggaac gtatgggggc gaggtggcta tcgctctgat	120
caatccgatg cgcttttctca accgtctaca gcaggagagg tgacttctgt cgggagtcgc	180
agcggacaga tatttcgtct gtccccataa acatagtcgt cgatgccggc ttctgctttt	240
tggcaacaag cggcatgccc gaaccggtgc cacggctctg accctgaatc tgagttcgac	300
tacggcgatc cattccgaag cgagactttc tctccatacg attcttccaa ttcaaagccg	360
gattgagttt ctccgaatcg caacctctgc tggccagatc aatctgatcg gaatcctaag	420
cggatgccaa ctgctcgcac agaacgaacg gttttggtgg gaaggtctct ttcagcactt	480
cgactactac attcggaaaa acgaataagc aaaaattcga gggaggtact cgtcacccaa	540
ccgga	545

(2) INFORMATION FOR SEQ ID NO:1204

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 758 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...758

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1204

ctgcgtcctt	cggacaagct	ctaccggttc	gacaaaagag	aagaataagt	gtagggaccg	60
agagcgaatt	atcacctctc	aaaccccgaca	aaacccaaga	tatgaaagag	aaagaatacc	120
tgttctccct	cgacatgaag	gtgagagcta	tgaatgcgac	ttgcagggtg	tggtaaacaa	180
cagcaactat	cagcgcatat	ggagcacacc	cgccatgaat	tctgggaaag	cctcggagat	240
aatttgga	aatgcacgaa	aaaggtcttg	atgctttcgt	ttacaaagt	accaaactgt	300
caaacagtcc	ttgcgtagcg	gcgatcgctt	ccgtagctgt	ctgcctgcc	caagaaaggc	360
cccaaactca	ttttcatgca	ggacattatc	aggaagacgg	tgtgatggca	gcccgtggcg	420
aagtggaggt	agtagccgta	cggacgggtg	gctcacccgc	ggagagtatt	tcgatgtgct	480
gatgaaagac	ttttgtccaa	aaccaccaag	taacaaaaaa	cgaagtagag	aggaagcccc	540
cgatcactat	acagacggag	gcttctcttt	cttttttgtc	atcaggataa	gccttatgct	600
catactcctt	tcatgtgcca	agacgatcgg	tattccgagc	gtttgccatc	acatttgacg	660
accacttcgn	cgatcttcga	tgagcaacca	caaagattgc	tttagctgca	tcttctgcga	720
tataaaggaa	ctatccgact	actcngtata	aatagaaa			758

(2) INFORMATION FOR SEQ ID NO:1205

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 516 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...516

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1205

cgcagtttgc	tccaccaatc	ggcacaaggc	ttcgttggct	cgttcttgtg	gaaaggctgg	60
aaaaacaagt	cgccgcgatga	atagcccgtt	atgctcaatc	ggggaacgtc	attatctcta	120
cacccttttg	catcggcctc	gtgtacctgc	ggtcgatccg	ctcgatattg	tattcgcaat	180
cggccacttt	cacaaaggaa	cagctgctgc	gaccttcata	aatccgtatc	tcatagggaa	240
ctgtaattat	gaggattgtg	gtttttattc	taattccgta	caaatatatg	ctttttctca	300
gtccctctcc	gaaaaagagc	caaagagagg	aactgcccga	gatacctttg	gaaagagggtg	360
cttgaccat	tttggggagg	ggagagcaaa	ggttgtacat	catgatggca	tgattctcca	420
caaacggctc	ggtatatctg	cgccatcggc	accagtgcg	atacgtacca	gcttattgtg	480
tccgcgtata	ccaccccaac	tctgatgctc	tatgcg			516

(2) INFORMATION FOR SEQ ID NO:1206

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1149 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1149

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1206

atctctccta	actgaccgaa	gcctatagtc	gctgtatcgt	agggtattgt	tacatcctac	60
cctagagggt	gaaggctgtt	tgaatgctct	acatcaagct	ttgctttcta	cgatcagcat	120
caaattgata	cgagcaatat	gattcatata	gcgaccgagg	cattcagtat	gccggtaaga	180
gctacaccga	tctgttcatg	ggcgaggctg	gcgcatcagc	atgactcaga	cgggagatcc	240
tctgctaatt	cattggctga	goggatgaac	aatacgctca	agaactcgtg	gcactctcct	300
cttcgaagca	gtcttttgat	caagcactcc	tttctgtaga	acagccgtgc	gcatgtacaa	360
cgaggcgctg	ccacatcaag	ctctaggggc	gaaacgccta	tgcaagtcac	tgcgccagag	420
tctaaaaatc	cgttactaac	gggaggggag	atggggccaga	gattgcccc	gagctatacc	480
gaaggatgaa	gtcagacaaa	gagctaactt	tgctcgtgtc	aaccgaaatt	agacctaagg	540
taagggtgtg	caacctaaag	tagaattata	gaaagaacta	gtaaaccatt	gtagaactat	600
cccgccaaat	gtcaactttt	ttcagtacac	gtcaactccg	gtggattccg	ttgaaactac	660
tagtagattc	ttccaaaacc	actagtgttt	tgcccgaaac	cactagtagt	tttctctgaa	720
accactagt	gttttttacg	cgttaaaaga	gtattgtcgt	gtgccgaaaa	aaagatggta	780
gtcagggcgg	ttaatttcat	cttggttcaa	caccgtttag	gagcacgact	gataggattt	840
acacctgcct	tcgatgaata	tcctgccgat	ttgcttgttt	tcagcatatc	catatacaaa	900
aaggccaccc	tttctatga	aagagcggcc	ctatctgtcc	ctgtttctaa	cctaacctga	960
aattattcgg	caggatggat	gcttcagaag	ggcatgctgc	agcaccaagt	gccacaatca	1020
atacatgtac	agcattcgat	tttatagatg	ctaccttcag	agatagctga	taccggactt	1080
catcgatgca	tgatcccgca	tgctacacaa	ctggtcatta	ttaacgtagc	catagttttg	1140
aatagttta						1149

(2) INFORMATION FOR SEQ ID NO:1207

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 632 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1207

cgctctagag	gatccccccg	acttcgagtt	cggccaattt	cttggaagat	tgcccacggc	60
ctgaaccact	aaggtaatgg	taccgcgctt	tatgtcagct	gtgcaatagt	caggggggatg	120
cgttcgcttt	tttctccaac	gcggatgtta	caaaatgtcc	tgctotttcg	gatttggtcta	180
tacgaggagc	ctctactcca	gcttgatcac	attagccgag	aagtattctt	tggatacgat	240
tttatcatag	taacagtcac	atttgcccgc	tgctaaccga	agcgttcggc	cgcaaggtaa	300

gaataatccg	gggggagtag	acaggacaaa	gaaaaggaca	cttcgttgga	gagctgaggg	360
aagcgtggca	gtcacatggg	aataccatcg	gggaaacgga	taaatatggt	agttttgtct	420
gtaaataagt	aagcataaac	acataatgcy	cattgatata	atcacctgcy	tgcccgaat	480
gacgaaaat	cactcaactg	ctcgatcatc	gggagggcac	aagaaagagg	actgctggat	540
gaaactgcac	ccagcttcgc	gactattcca	ccgattaatg	aaacgtgtga	ccactatcat	600
tcggtggaga	gcccgcacgg	tgatgcaaat	ag			632

(2) INFORMATION FOR SEQ ID NO:1208

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 478 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...478

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1208

tgagccggag	gacatctcaa	ctgcctgtcc	gaattggtgg	aagcgaccgc	ggacgaatcg	60
acatggatcg	gcttcccgtc	ggagacccta	ccctctctcc	aaagagataa	tcggcaacga	120
gagtcaggaa	cgtatgggga	tgctgatcag	gagaaagatt	tggaatatgt	acgcaaaata	180
gccgaacgcy	aacgcgtccc	atgtatgtgg	tcggagagac	cactgacgat	atgcgcttcg	240
tcttcgcaag	gacaatggcg	agtgtcctat	cgacatgaag	ctggacgaca	tgttggcaag	300
cctccccgta	ccatcatgga	ggacagaacc	atagaacatc	gcttcaggca	ccgcaatacg	360
accctgcccc	tctggatgaa	tatctggagc	agtatttgcg	tatggagtca	gtagcttgta	420
aaggattggc	ttaccaataa	gtggacagat	ctgtgacagg	accaagtggc	tcgccagc	478

(2) INFORMATION FOR SEQ ID NO:1209

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 933 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...933

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1209

```

cagagaaagt cggtttcaga cgatttacac cggcagatcg ttcgtotata gaatttgago      60
caatttccttg tgatgcttat cagtagtcag ccacgaaaga aaggggtatc atagcagtcg      120
cccgtgcaaa gatcgcatTT gcagtaaggc tcaaatagat catcccgtcg catatggcta      180
tcaggcgaac gacgggagca gacctgcagt aggatcggcc aaggcttcog tctcggatcg      240
tgctaacgtc cgatggatto accctgtgca tccgtgatcg gtatccactc ctogggtgca      300
tttctctacg taccatttcg agtcgaatca cctcatatat ataagcaata acagcgatac      360
accgggcaga tacaataaga ggtgtgcaat cccccaccc tgaagtagag caaaagtccc      420
agaaggaaaa tgaaaaataa catatacgca ggatgctgcc tgtaatgctg ccatactcca      480
gcatgaccag cgtttgtgog gacaatccgc atagtctccc tctctgccac tgcttctgog      540
aacagcctgc acgcagccac agccaagagc atagcagcca gactccagca aggtcgggtga      600
gcggggaagt cttggatagc cacaagtag gtagcaaga acaagtacac ccagcgaagt      660
caatacggac ggctgacagt tcttgctttt cgacgaaaaa agagcatccc tccgatgatt      720
gcaaagagag caatgcagcc gtccatgcca ccattatccc cgcactcggc agcaacagga      780
gcaaaagacg accggcagaa atccacccat cggattagac ccataaaggg tgcatatccg      840
gatactcttt ggtagtcaaa ataggattcg ttttcgtatc agataacagc catagaccgt      900
tgggttgctc tcggcagtag aactgtatt aga                                     933

```

(2) INFORMATION FOR SEQ ID NO:1210

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 392 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1210

```

cccagttcct cgggggaaaa tttgatcccc ccgctattga ttacgtaatc aaacgcccct      60
tccacacgaa atgcctttca tctacgagct ccaccatacc cgggtgcaaa actccgattc      120
ccgaatatgg ggagcatgta tgcaaagcat ccggattcgt cccggcgga aacgcactcc      180
tccaaagcct cgaaacagcg gaagctccct ctccgttcaa tcgcataaga gccgtatggg      240
atgcctttcc gtcattccgt aagtagcgaa aaaacgggtg ggaatatccg ccaacgctot      300
ctcgtagtcc gtgccagggg gcctcctcct atcaaaagat tttcaccttt tcgaaccggt      360
ggctttcccc cgatgacagg atgtcctcca ct                                     392

```

(2) INFORMATION FOR SEQ ID NO:1211

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 653 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...653

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1211

```

ccccgggagtg gaaaaagccg gcagcatata ctgcagagct tcccctcctt acaaaataga      60
ccgaaaaccc tctcggactt tcggtcttgt tcggttgcc tctcttgga cttgaaccaa      120
ggaccctctg attaacagtc agatgcttaa ccaactgagc taaggaagaa tagaaaaacg      180
gcttggtgaca gcgcttctct tgggctcgaa ccaaggaccc tctgattaac agtcagatgc      240
tctaacgact gagctaagaa agcctttcgt ttttcgtgat gcaaaggtag tgcatatccc      300
aaacatgcaa gaggttccgc aaaaaaata cattcagata ttaaaccttc tcgccaccac      360
atccgttggg gcattctcat catattcatg acgagaaagg gctgccgcct ccagacgggt      420
taggctcgtg aattttccat tcgatgctcc gaaaaacgtg gcgcgagaat tttttcgtat      480
tggttcacac gtttttattt cccgagccaa aacgaaaaat ttacgcgcgt gtttttcaga      540
tttacgaacc atgacgtgta ctgaaaaagt gacagtttgg gtgggatatt ctacaaattg      600
gttactaggt cttctataat tctactttag gttgacaccc tacccttagg tct          653

```

(2) INFORMATION FOR SEQ ID NO:1212

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 484 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1212

```

ccggctttaa gaatataaat cgagtagaat acaagcctat caatctgtcg tgcttcaaac      60
tttgtctgag gctaactctc tgaccaagat ttcggtaggg acttgattgc tgcagggctt      120
gtttctcgaa actctttagt taagatatgg ctaatggtac agtgactacg gctttgacag      180
tagaagctca tgcttttcaa agacagcaga agaagctatt gtaagagcag gaggatctgt      240
tgtaaaactat aagcttaatg cgtgcggtag aaacaatcaa gaatatatgg aagatgagga      300
ttttgcgtca acgcattctc acgaccatta ttgttccgctc cgtgtttatc gctttgggtt      360
catttgggtcc gtgatccccg gtattgacct cgatcgttgt cagcactcaa agaccagact      420
gctggaggac tgatggctct ctggatatgt tttccggggg ggctttctcc catgcatcta      480
tttt

```

(2) INFORMATION FOR SEQ ID NO:1213

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 524 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1213

catccatcgg	caagtagcat	cgcttttgcc	gcatcgctcct	tttgaaatag	aatacgccgg	60
attgctatgt	ggcttacggc	tatgcaggct	ctcagtagcc	tttctgacat	aaaaaagtgt	120
gccgaaaacg	ctgctgaagc	gattttcaca	caccctcatt	ccttatgctt	atatgaaaag	180
ccgcactgcg	gatatgctaaa	ctccgaaaaga	caagatttga	ggattccacc	acctttgtaa	240
tccgcgtgca	aagcaaccgc	aaagggtgcg	cccgccatca	gcgatgaaat	tgtctcggaa	300
tagttgttat	gatgagtttc	cccgatctaa	cagtgcggct	tatcctcgtc	ttctctgtat	360
tgcaaagtta	gcaacattgt	ttagatttgc	aatctttgtt	tcacgattt	tgggtatggt	420
tacactttcg	gacctaatac	gcgttctcga	cgtatcaaac	gtattacgat	agttcgggtg	480
cttaggtaat	tgctttgacg	atcggggaag	ttttctccgg	tttg		524

(2) INFORMATION FOR SEQ ID NO:1214

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 485 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...485

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1214

cggttgata	tgctccgaac	gtccgttgcc	tcgggagacg	gtactgacct	gcggttccaa	60
ttggagtatt	ggggcgatat	atatcggttg	atgaagcagt	tttcctcaa	gcctcggacg	120
aatggctggt	cggttttacc	tcggatcatt	gctttggatg	aagcaaaaca	ggaaaatcct	180
attggacaat	gctcttaacg	cggcgagatg	gagtcttctc	agccgactgt	cacggatcgg	240
tacttaagga	gttgccctcc	gatcagctgt	tacctcccga	agctcctcgc	ctgacgggtca	300
ttggcttgga	accaacctgt	aagctcaggt	agtattagg	caacgcatca	atatgatttg	360
tttagagcga	ggagcttcgt	tttcgtcctc	tgctgaactc	ctaattggtg	tcctggtgca	420

cattggtatt tatggcacac cgctatcttt gcaacccgat cttattcaat cctgacctcc
aatat

480

485

(2) INFORMATION FOR SEQ ID NO:1215

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1028 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1028

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1215

cncttgccca	ttcttttggt	ttgctaactg	tcagtaacct	tttcctgcaa	tctgctggta	60
tgggggtcaac	taccttccat	ccgctaaaga	ctccagcatc	atacctacac	acgttgaatt	120
gcttgccctgc	atagattgta	aaagatctgg	tattgcattt	gcataatgccg	atatagcaga	180
acctcggcag	aatctcagcc	atagatacaa	ttccgggtcta	tcttctattc	aagaggacgg	240
aaaaaagctt	ttctcggaga	aatctccctt	gcttttttgg	cttataaaatt	gttttttgaa	300
gtcctaataat	gagacctctt	tccaattcga	gaacttctctt	ttgggattcg	tcacactact	360
tagtaatatc	cttttcaaca	atgaaaaaaa	cgctgtaata	gtcgttcacc	ccgatttgac	420
caaataccgtt	atcaacaagg	ctggggccaaa	gccatcgaag	gtgcagccac	tatccaccat	480
ctctacgaac	gtatccgaac	ggacaaatcg	atctagcaca	tgaacaagcc	ctgctggagc	540
tcatagaccgc	atcgtctctc	aattccccct	ctattgggtat	gcagctccta	tctgctgaag	600
aagtggatgg	acgaggtctt	tactgagggc	tgggccttgg	tgcgggtgga	gacaagatgg	660
agggtaaaaga	aatctgtgca	gcagtccttg	cggatcaccc	aaatcagctt	ttgccgaagg	720
agcacagcaa	tgccaacgct	gcgaagctac	ttgaatgtat	tcgacgggat	agctgctttc	780
ctgcgcgtcg	attcaccggc	taccatgcct	gctacgattc	ctacaatcct	cgctgccgga	840
aatgctgccg	gccaactgcg	aagcctatct	ccgctttatc	aaggagaatg	aatacagagg	900
taatagccat	cattccggct	cgatttgctt	cagcccgatt	cccgggcaag	ccactggccc	960
gatatgcttg	gcaaggtcta	gatccaacgg	gtacatgagc	caatagtcgg	tgtcgtcccc	1020
cgggccccg						1028

(2) INFORMATION FOR SEQ ID NO:1216

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1216

```

ggagcctaaa ccctcgcaga gggagggagt cngatgtgt agtttccga cttccgagta      60
caggttcagg ctctgtattg agcaggctct catatcggag gcctcgtgtc aggtattggt      120
tgtccgccgc ttgcggagca tcaggctctt gctcggagca atcggcagaa cctgtcccga      180
ccgatcgaga actacttccg aagtactgct tacagaaaat gtaaagcccg aatgctgtcc      240
gatcttactt tgtgggtaat aattggatta tatccggctg gaatttctgt actttgatta      300
gaaataggca tcccattttt ctttcaaaaa agaacacaaa tacttgtatt atgatgaagc      360
catctctttt tttagacctt gttgctgtgt ttttatggtg acaataaaag gattagcaaa      420
accacaaata gacaaagagg tgatcccata acgaagctga ctttacgaaa tccccagaat      480
ggaggcagcg ggttttatgg acaaatatcc catgctctgc tga                          523

```

(2) INFORMATION FOR SEQ ID NO:1217

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 448 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...448

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1217

```

tttgatgtcg agcatacgct ccaacttact tttgtcgagg ctgtcaaaat ttcatttggt      60
tttatgacct gcatgttttt tgagcaatta gtgatgaaaa caacctcctc gcagcttato      120
aaaagcttat tgtggaggta tatccacttc gtaaataata caatctcaga atatataatt      180
gttctggttt ttcacacagga aaaaagtgcg tatgctcatt acgcctcaag caggatacga      240
gcctgaatgc tccgattgtg gtctgtgttt tgtgaaaagc aggcgcgaga ttttttcggt      300
ttggtttcac tttttttctt ttcccacgcc aaaagcaaaa agtcacgtgc cacacttttg      360
gggtgtcata aacccgaaaa ttaggcgtgt gacccaatcg gataggggat gatacatcct      420
atggctgaat cgggaagtga aatgggtgc

```

(2) INFORMATION FOR SEQ ID NO:1218

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 976 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...976

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1218

```

cggaatatca gcgtattcgc ttatctcacg acactggatg ggatgctcgt taggcattta      60
ttgggaacgat gggttggtact atgtctattg tagtggcttc tactcaatcg ctttagagta      120
gaagagatgc aggatcatac ttaccgctca cacgaataca gtactgcacg cagcacgagg      180
agggcaaggc ctataagctc tcatcaaggc tctatctctt gacgggtctag atatgtcggc      240
ttatttcagt ataaggacta gcttcataaa aacgattgca cctaacagca ttcttaagat      300
gctgttaggc gacttcttat tactgctgga gttgttgagt gaggcttctt gctcttgga      360
gaggagtgtg tgctggagct ggagttcggc ttgcgttcga tggctagtgc gtagttcgtg      420
acacgagagc ggagcttgcg atggagtcgg aggagtcttc ggaggagaaa aggctgtcaa      480
ggctggcgat tttggtgtg tatagccgag ctccattcgt agaatacgat agcggagaga      540
tgactatcaa gggcttgatt gacgccatag agatgtgtcg cccaaccatg acgcaggcaa      600
ggacagcgat catcacaccc catatgagcc attctgccag cgtttgacat cgaaaaggta      660
gtatttggaag agctttatct cgggggttgg ttgtttagtt tggagttctg tcaagagttt      720
gtcggtcgct tcgtctgact tatccgtacc tcggtaatgc ctgacttcat ttcgtagatg      780
cgcttccaag tttagcaatt acttgacaaa gtccctctct gaatcgacga tgaactcctg      840
ttgctcctct aaaatcttgg cgattcctgc gagatttttt ccattctcga cttctccttg      900
cgactctgtt ggttggtgta aattggagat atcgctttga gttctctggt ctggttgctg      960
atttcttcga gtactt

```

(2) INFORMATION FOR SEQ ID NO:1219

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 445 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1219

```

cgtgtagctt tcgtgctggt cggttctttt tatatctact atctgatctt actctcctgc      60
cggtagccgg gccacaattc tatttccccg ccatcggtgg gatagcgtag cggcaggggc      120
atttccaccc atcggtcagt actttgcgca cacccgagc tacaagagat ggaggtggcg      180
catcaggggac tgttcttcgt ctgggtcaata tgtcacaaca aatgggagaa gcgtcccact      240
gcggctttcc caagtagtca tgcggcatt caacggtna tcttcgcttt ctttaccga      300
agtagccggg aagttatttc tggtaacctc tgccaatcgg tattgcctga cactggggcg      360
ctgtctatat acaagcacat tatttcattc gagtattggc cggtcctggt ttcgggactc      420

```

ttattctatt atggaggac aactg

(2) INFORMATION FOR SEQ ID NO:1220

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1068 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1068
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1220

cgccggcgag	ggagaaatag	acgaccatgc	catcatcagc	ggcggagtgt	gatacaccag	60
ttcgtagca	tctctcagca	tgtgatgac	caaggtgggc	ccgcctctcg	aaggacatcc	120
ctccgtatgt	actggtggga	cgggatctct	cgtttattgc	ggaatcaaca	tcgtagggtc	180
gcgccgncca	aatttcccaa	cgagcagatt	ttcctgatca	atgatattta	ccgcacactt	240
taccaagagg	actgaataat	tccgatgcga	tcgatattat	ccagcaggag	tacgcgattg	300
tcatgagaag	gaacttatat	tagactttat	caagtettcc	aaagcggcat	tgtccgtgga	360
accatggagt	gaagccatga	tcgggatatt	catggagcac	gcatcaagga	gcttgaccgc	420
tacacgatag	agcacgagcc	ttctcttcga	tcgatttagt	cgaacgagca	gccgccacat	480
gggtgtatga	ttcgaacgtc	tctacaccca	gcagcgccgg	atcgtagtct	tcgccggcct	540
ggcaataatg	gagcggatgc	cctgtgtaca	gcccgatttc	tgggcgaaac	ggctattcgg	600
tggatgcctt	tctcttcaat	gtcagcggat	cgctcagccc	gaatgcaacg	aatgcagggt	660
acgcctgttg	gagacttcgg	ggatcagctg	accgaggtgg	tggacaactt	cattccgccg	720
gaactttcca	gccagccata	gtggtggacg	gtcttttcgg	cgtgggactg	aatcgtcctc	780
tacaggcgga	tttgccaagg	tcgtggagtt	cctcaaccaa	tcgggagcag	agacgtatca	840
atagacatcc	cttcggggct	gttcgaagag	gataacttcg	gcataatccg	aatgccatca	900
tcagagccac	acacaccctt	acgttcgaat	acccaaacta	tccttcctct	tctccgaaaa	960
cgccgactat	gtaggcaagt	gaaagtcctg	aatatcggtc	tgagcgtcga	aggaaagcaa	1020
acgatcaagc	agagtatttc	ctcaataaccg	atttcgatat	atccggca		1068

(2) INFORMATION FOR SEQ ID NO:1221

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 814 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...814

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1221

```

cggggccacat aatgcctcga tataaccgac ggctcgggat ggctgcaaga ataaataaac      60
gaccaagctc caaacaatcg gggcaatcag aatatccgaa atcgaacctc catattccaa      120
gagaccaata ctggcgata ggattcatga caataagctg taaaaggcc aggaaaaaca      180
gcagatagct gcggttagca ggcggtggac ataggtgtta gaggcattct gccgaagact      240
gcaatcgagt tgcgtaattt tgaaaaagg tcgatcatag tatttttttg tatttctaag      300
actttgattt ataagtaaca ttcgtagacg aggaggctaa ttgattgaga ttgtataaccg      360
tttagaggat catagtagaa gtatgtaatg tcaaagggtg cggaatgtgt tctttgaaga      420
tgttcaactg aaacgcgaca agatatgtaa aaatatgtgt gcatagatga aattaaccaa      480
tagacctcag ggacaaccgc ctcaaaatgc tcccgtttaa gtttgattgt agtgatgtgt      540
tttgatatgc gaggggaata gtcttttgag agagagcaaa tacttgttat tcgttcgatc      600
tcatggaaat gtcgttcttg tcatcactca ttgtcgtcag tcttcgtgac tatacagtgt      660
aggaagtttg gtaaggtttg cccgagggag gtgtgtcggg ttccagcgga ggacttcggg      720
aatggcccg agcaaggcgc agagtaaaagc ctgacgtgtg gttcctttct ggccgatgac      780
caacatgtgc gtcggggccg aagaatacgt ccgc                                     814

```

(2) INFORMATION FOR SEQ ID NO:1222

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 468 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...468

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1222

```

cgtagcaaaa atcccagccg tataggcccg gttgctgcgc ttttattgta tcgctattgg      60
tatcgaacag cctgttcgaa aagacgaagc tcagaactat ttctcagttt ttgccttaaa      120
tttgttccgt tattacactt gctattgaaa gtgcgagctg ttgatagcca atttcttttg      180
cttaaatcat tgaatcgatc aaaaaataga ctaaagtttg tctgtgaaag cccatttgca      240
aatgagagta aatggatatt tatacaatgg tttaaatata ataataaag aatgaagacg      300
aatctacaaa taaatttggc tccttgaatt taagcgggtc ttgcctttcc gttatatgtt      360
cttggtgcat tggatcgttg atacgactat taagttgccc gaagaaactt cccgacttct      420
gaattatatt ggatcttgct attggatatt cttttttgtt gagtttgt                                     468

```

(2) INFORMATION FOR SEQ ID NO:1223

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1092 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1092

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1223

```

ccgagagcaa cctcttcgat aagcattcgg gaggtcaaag aaacacctgt ccgtttacgc      60
tgctgtacga tctgctgcat ccgtacgggt tcaacaggat cagatacggg aggtggccac      120
gtctttggac aatcctcccg gagcttcttt ttctcttctt cgcctcgtct cttacgtgag      180
agggatcggc ttacagactt cccttatcgc caaagatgga ggtgccggaa ctgttcggcc      240
ttaaatcgga gattctttcc tcgatctgcc ggatggaaag caactgagtt ggcacgcggg      300
actcctgccg atttggactt ggagggctct cggcttcoga atacaagcta ttgttgccct      360
tggcatttgt agaattctta caggaggagc ttgggttcgc cgtcgcgaac gagggggatc      420
atattcatcc ttacgggatg aaggctgcaa gacgggtgaag ccgtttcttt atcgatcgtc      480
acgtgccacg agccggaggg aagaggcttg gctcctttgc caaggaacag aagtggatatg      540
atcatgggct atgcggctga tcggcgattc gccatcgatg agctgtcgat acggaagaat      600
atctgctctt ctcttttcgg ctatagagct tgctcgaggc tttttctctt gcccgggagc      660
ctttctcctt cgcattccatc aggataaata agcacggtaa aggcggagta gggatatagga      720
atactgtcca ttgagcgctt atacaaggat ttgagttcga atatgcgagc gggattgggtg      780
aaatgggggt taattcgga aacgatacctg catctatata ggcacgggga gccatcgctc      840
tttctctatc aaaagggcaa ggtgcccttc gatgggtact ggctgagttt ccgctcggta      900
gcgacctctt ctatgctcat acctgccagt acaattcgag cgttgtctcg tgggtagtct      960
ttttcttttc cttggctttt tctctttact ctttcgattg ccggcggctg ttggcagggc     1020
ttcgtccttg gtgaaatgct gcgtacccat tcggccatca gctcttccgt ccgaagttct     1080
gtctgctgag gc                                     1092

```

(2) INFORMATION FOR SEQ ID NO:1224

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 546 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...546

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1224

```

cagaagagtt cccataccat gagtagtatc ctctaattaa acgcccacac actctttttc

```



```

ccgatggaaa attcgggtgct actacctgtc aaatatagca caaaattatc gaaatgacct 120
gtactgaaaa aaatcgtatg ttgttttttag tagataggat tgctgtgctt gtctacttgg 180
gaactcctgc cgagagttct taatcaagg ggcaggctac aagcgaacaa cttgggcaag 240
caggctatat tattggccca aggagactct tgataacaca acgaaggaga gacacggaag 300
ttcctctcct ttctattgcc aaaaactgac ttttaggaca ctatgatgca gatccgatat 360
ttatgttttc ggaagggtatc tggtagtag tttatcggat atcnggggct ctctctctct 420
ctctctctct ttttgtaccc aatcaacttt ttctgtgcga gtttttacac atctgcggct 480
cgtgtttttc gaagagggtg cgcgagattt ttttcgttct ggcgcgtaaa aatttttactc 540
tcgcgc 546

```

(2) INFORMATION FOR SEQ ID NO:1225

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 563 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...563

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1225

```

cttgaatccg ccgaagtga cctcgggagc atcgccgcaa taatagaacc accggccttg 60
ccccaatgaa tgacaccgtc cggcagattg gctacatcaa atcgttgtag gccgatcggc 120
tgagatagag ggtgcgatcg ggcttggtgc cttgcgaccg ttgggcttca tcttcagatc 180
gaacaggctc agtgcccgga gtctatggag aaaatctgca tggagagagg cctgccacgg 240
tattcgaaga gttgttggtg cctccgttca gcgagtagacc acgcgtgagg cctaaccgt 300
tatgccgggg attttggcta tttcggttct catcgtagtg acgtctgcgg atccagtccg 360
aaaacgtcta tgatcagttt gttcctgtaa atgtagccca tgtcggaggt ggatcatatag 420
gtccgatctg cacgggcatt acatggtaca gctcagcagg gatcatcgta atggcatact 480
gggnaaatga cataatctgc gagagcttgc ttttgaccac acggcgaaac ttgccgttgc 540
accttggtatc ggacgaaccg cga 563

```

(2) INFORMATION FOR SEQ ID NO:1226

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 432 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1226

```

gogtctggtc atgatccatt cacgtccgtc caattcaacg atgttatccc ggttaaattg      60
gacacatcaa tatacgccag gccactgaaa caggagaaat gaaaatatcg cgaaccaa      120
ccaatctggg tatggatatt tcttttcaat gattcgctga atttcttcat cggttagaaa      180
ccctctgctg gaatctgctg atgaaaccgc ttgttcacaa aggggtcatg agacagaaat      240
ccatgctgcg ccataaaga gtaatggtt tgaaaagctt caagattttg gttgcgtatt      300
cggacaacaa tgagctacag tcagcagata tatctcaaag ttagaatgac caacggggta      360
agctctgaga atttgagatc cgttctgttg tattcgcttt gaggaatcgg gtaaaatgcc      420
gttgctggtt tc                                     432

```

(2) INFORMATION FOR SEQ ID NO:1227

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 478 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...478

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1227

```

ggaaagatcc ccgaagagaa tcgttcgtcc acgacagcga tgtcacgcgc agtcgattgc      60
tgtccaaagc catcatttcc tcattggcat ttcctaccag cggatactgc cggccggcca      120
tgccggaccg taagcgtccg gattcgaatg ggagagggcc ggttggtttc tccggggact      180
atgatatact tgggtgtgagc atattgacta cttcgcgatt gccttttgctc agttggtggt      240
cgatcaatcc tgataacgct ggagtttggc agcgtggtat ccaccgatgc tccgtgccag      300
cggctcgtgg tggcatcatt ataagtgtcc acggtgagat tcaaacgcgg taccgagcg      360
acttgctgc aaggatttgc ttgtctgctt cttcagaggt gcagcacgtt ggctgacgag      420
ttccgggatac tatgaaatgc tatcgttcag atagcggttt gtccaccgtc catagatc      478

```

(2) INFORMATION FOR SEQ ID NO:1228

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 594 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1228

atcctaacta	tctgcgcgat	gccgtattcg	atcctcggaa	aatctcattt	tcaccgattc	60
ggatctgaac	agttttttca	gagccagcga	tgtggtgggc	ttgtcactcc	ttgccttttc	120
atcaaatacct	atctgaaacg	cgttcgccgt	ccagcatgcg	cgacaagctg	attatcaatg	180
ctatcaagg	gatcgccgg	atgagaatgt	cttggtatcg	gaatatctgc	acgatttctg	240
cgatgcccc	acgaactgat	aggtgtagtc	tccggtcctt	gccatgcaga	ggagtggcca	300
gagagcgcag	atcatatctg	acggtgggct	gcttcgatat	caaaaggcaa	aagccatggc	360
aaacgtacta	cgcaacgatt	atgtgaagct	gtcgaccagt	caggaccgta	gtaggcacgc	420
aatatgcctc	ggtgctgaag	atgtttatgc	cattgctgcc	ggaatatgca	acggtcttgc	480
agtatggcga	aactttcaag	tctgtcttga	tgtcgaatgc	cattgctgaa	atgaatagtt	540
cgtaataacc	cgtcacctct	tggaagaga	gatcacggat	tcggtatatg	ggcg	594

(2) INFORMATION FOR SEQ ID NO:1229

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 752 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...752

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1229

cgtaaaattt	tgtcttcagg	gccttccacg	acaggagggt	taagaaaaag	ataactaccc	60
tatogaactc	cggagtgcga	acgactattg	tagatggact	ctttctcgca	agtgtctggc	120
atctcctgtc	gttaccgatg	ctatgattta	gctaccggag	ctgctttgtc	catcaatata	180
cctcagtttg	tcgtaaacg	gctgctgtgt	atcaattgat	ctctttaccc	acagtggaa	240
ccgaatggca	gagaaattag	atcccatcga	acaaggcata	tgggggtag	acgatcgggt	300
aacgttcacg	acttagggat	tcgttcggca	ctgctgttga	atgatctaac	agaaatgacc	360
taactcgctt	cggcaacaga	atztatgtgt	ccgggcggtt	agtgataact	tattggaaca	420
gcttcgcctc	tctgatgata	aatctgtctc	atcatcagag	atcttacacg	tatgtttgct	480
ttgccggaag	agtagatcgt	tttctacaga	gcaaacatga	gatcaaactc	ctgtatggag	540
taagctattg	gcccgtgaca	atcaatccgg	tagcaccacg	cgggtacaac	tgaaatccga	600
agtgtcgcgc	agagagatgg	aaaaagccct	cggtattcgg	tctacgatgt	aagagggtta	660
aacacgcttg	aatgttgatg	aaactacggg	aacagataaa	tagcattagt	ggcttttccc	720
tatgtaataa	aatgattggg	ccatccattc	at			752

(2) INFORMATION FOR SEQ ID NO:1230

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 862 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...862
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1230

```

cgagccggac gtatcacacg gcatgattcc catagtccag catccctgcg gaatatgatg      60
tgtgactacg cttccggctc caatgacggc tccccctccc gatgtttaca cccggcaggc      120
tgtaggtttg aaccagcctc gtattatacg tcagttcgac gtaagaaaac gccaatgaat      180
aattcttttc ctgatcgagg ctaatgccct aaaattctca gacaaatagg ggtaccctgc      240
ttctgttgga tcgaaccaac attgaaattc ggattgcttt tttgaccgaa tgttcagtcc      300
gtacagaaaag atgggctata ccacaaggca catggaggta cacgtagagg ataacgagct      360
atcccgtaca gctcttcgag ctacgctgta gactcggcga ggtacgctct acagcgtagc      420
gagccgagcc gtagagttcc gtccgggagc cgtagagggt gccgagctga gccgtagagc      480
gcagctcggg cgctctacgg cgtagcccga gtcgctgtag ggcgtanctc gacccccttc      540
ggcgtatggt ccgaatgggt ataaaacaat gcggattcga tctgaagaaa tatgcaatat      600
cctgtttgtc agcgtatttc atttctcggt tgagagattc agcttcgaga ggcttcgaca      660
tccaatgaga cgtcaaaact tttcccttca tttctgatt cggnatatagt caatgccccca      720
acaagagctt gatcgtaagg cggttctcat gagaatcgac accatatcgc ttacatcgac      780
cctccgttaa aaaagaaaac ctgcttgagg aaggattnca aacagggtgat aagagggtac      840
cgatatgcat ccgaataacc cg                                     862

```

(2) INFORMATION FOR SEQ ID NO:1231

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 361 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...361
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1231

```

ccccgcttc atcacaaaag acaagcaacg catggccatg aattggctct caatcaggct      60
cgacataacc gccagtggct ggccgaaccg gctttcctaa caaggtagag cagaactctg      120
ggatgaccga cctcttgggc aaggccaggt ggccgctctc ttcaaccccg gtagcatagg      180
acgcatatac gaagcaagca gtccggacaa ccgggtgtgt acaagctcac ggattacgcc      240
aacgactgat cgatgccatc ttcaacgtga agggcaatct gaccgatgcc gatcttctat      300
tcagaacctg gccatcgacc tcatgtcggc catagtggtc ttctccacgg gaaggcaaga      360
a                                                                 361

```

(2) INFORMATION FOR SEQ ID NO:1232

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 419 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1232

```

ccctcgctcg gtatgattgt ccggttcttt gctccgtccg attacagacg gtggaagaaa      60
aaagattccg cgagctgacg gacagtcctc ttgcgcacgac agccttcggc cggagcgaac      120
ttccgcaaaa gcattacgcc aaaaattcct taatacgatc gaatatgaac aatgaaaaac      180
atccgaaaca tccgcacccg tttttccgga gaccccgga aaggagcgg acaaagaaga      240
gaaagaaaaa gagaacagtc cgaaaagaag aaagaacagc ttaaaaaact gctttcttcg      300
ccggattagg catcctcttc ctgatttcct tatggctgat ctttctcctt cggccgaaga      360
gcgacaaaag gaagagagga cagcaggttc ttacgaaacc gttccgcaag ccaccgacg      419

```

(2) INFORMATION FOR SEQ ID NO:1233

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 738 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...738

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1233

cgtctaagaa	gtaaccagat	cagtaaacta	gagggcctgg	atagtctcac	tcgctaacaa	60
aactttctct	ctccgataac	caaatacagta	agctagaggt	ctggaacgtc	tcacctcggt	120
agcggagcgt	tatcttttgg	ataaccaatc	agtaaactag	aggggtctgga	acgtctcacg	180
tccttagcaa	cgcttgacta	tcgggtaacc	aaatccgtaa	gctggagggt	ctggaacgtc	240
tcacgcctta	gcaacgcttg	aactatcggg	taaccaaata	cgtaagctag	agggctggaa	300
cgtctcactt	cgttaacaaa	nngcttcgtc	taagaagtaa	ccaatacagta	agctagaggg	360
tctggaacgt	ctcacgtcct	tagcaacgct	tgactatcgg	gtaaccaaata	ccgtaagctg	420
gaggggtctg	aacgtctcac	gccttagcaa	cgcttgaaact	gtcgggtaac	caaatacagta	480
agctagaggg	ctggaacgtc	tctcttcgtt	aacaaagcgt	cgtctaagaa	gtaaccagac	540
agtaaactag	agggcctgga	acgtctcacc	tcgctaacaa	aactttcttc	tccgataacc	600
aatcagtaa	gctagagggg	ctggaacgtc	tcacctctta	gcggagcttt	atcttttgga	660
taaccaaata	cgtaagcctg	gagggctgga	acggtcttac	ctngtaacaa	agctttcgtc	720
taagaagtac	ccaaacag					738

(2) INFORMATION FOR SEQ ID NO:1234

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1234

ggactgatgt	ggtcgatgaa	gagcttcccg	tcgatatggt	cgtattcgtc	tgtaccactc	60
ttgccgcaaa	gccctggagc	acctcttcgt	gcggetgaag	tcctcgcca	catagcgaat	120
acggatggag	gtggggcggt	ccacctttcg	tgtatggccg	gaaggctgag	gcaaccttcg	180
tattcggtgc	agagatttcg	cctcgctctt	cgatatgggc	gttgatcatc	acgcgcttga	240
atccgcacat	tcgggataat	cctcttttcag	cggatcggca	tcgatcacga	gtacctgatg	300
ggtaagccta	tttgaggagc	tgccaggcca	atgccgtcgg	agtgtacatg	ctctcogtca	360
tgttggctat	cagctctttc	agtttgggat	agccggaggt	atatcttctg	ctacttttct	420
cagcaccgga	tgcccgata	gtagatagga	aggagcattg	ttctatcgaa	tagtatattgt	480
gttcttgtga	tgtcttttct	cttgtctttt	gggtggaaaa	tgccgtcccc	gtctcgaaga	540
gggggaataa	gccgtctcgc	tcactctgctg	ggattgtcca	gatacgacgt	aggatgatga	600
ccgcactgac	ctcatccacc	agagccttgt	ctcgccgttc	atcttgcccta	tcccggtctc	660
cagaatagtc	ctctgtgcc	tgccggggtg	aagcgttcgt	ccacgtacgt	tatagggtata	720
gaggggaagg	cttggcgaagt	ttaacggcga	aggggaggat	ataggtcatc	gattcggact	780
cttctagttc	atnccgctg	gcagtcgccg	cacgaacgct	caccggctcc	cggtgacgta	840
gtcccgccag	aagtccacag	cgtatgggta	gg			872

(2) INFORMATION FOR SEQ ID NO:1235

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 496 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1235

gcgccagctg	acaccgcagg	agagacaaga	gctttggagg	ctgattcgga	tgtaaaacgc	60
accttgccct	atgccaaaat	gatcgcagct	actctgatga	aacgtacgaa	tatatggaaa	120
cgatgcccg	tgagaaaagc	agacaaagca	tctcaagcgc	atggaaaagg	agatgaagca	180
gcaatacatg	ccggagtga	acgactgacc	ctccggcagg	ggaagctcct	gatcaagctg	240
atcgacgaca	gtgtgcacag	tcgagctatc	agctactcaa	agcttttctc	ggcgatggaa	300
agcgggatgg	tggaatctct	tcgcccgcct	ctatgggtgcg	agctgaagac	tcggtacgaa	360
cctgacaaga	atccggaaga	cgccctgacg	gacgaatagt	tttgtttagtg	gaagagaaaa	420
gaatttaaca	aagttctttg	cactttcggc	aaaaaaggct	atattggcct	ttgtttttca	480
gagacgactt	gattat					496

(2) INFORMATION FOR SEQ ID NO:1236

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 678 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...678

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1236

cctgcattg	ataaccactt	tacgcttggt	gatagcagtt	accctaccct	tgccacttgc	60
ttttcgttga	tgggtattgag	cgttttgtca	taagcagctc	ctgctcctga	cgactcacgg	120
cagcatggac	gccaccggcc	tcaaactttc	ccagttgaaa	tcctctctgg	gctgaatggt	180
ctttaagttt	tccattgttt	tttaatcgtc	ttgttgctaa	tagattggac	attatatggt	240
catattctca	aaagcacggc	aaagttacaa	taacttttcg	ttactctctt	catttgatca	300
acctgcagat	tccccccacc	ggtgcaacat	taagcaagcg	acccaggatt	gactcccaag	360
agtcaaccga	aatcaggaaa	cgacactatt	tgaattacaa	tgttgcaata	tcgatcttgg	420
cgtaaaactg	atcggaaacg	gccgatgttt	cttcacaatt	actgcttttt	ttgacctcct	480
caagcctcat	ttttcagtag	acgtcacgtc	agtcgtcagt	ataaaaaagt	gacgcgtgct	540
ttcctgaaaa	ggcgcgcgag	aattttcccg	ttttggcgcg	agatgttttc	gttctggcgc	600

gggaattatt tattttctcgc gccaaaacaa aaaagttacg caccacgttt tcaggggtga 660
taagccggaa attttggg 678

(2) INFORMATION FOR SEQ ID NO:1237

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 492 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1237

tattccttat agctggcagt gtccatacaa agtgtctaag ttccataaagc aatactcatc	60
gtacgcacat gattcaaata tctgttttcg ttactcttaa gtctctttac cattacgtaa	120
tctacttgat tctctttgac cacattgatc cgtgtcttag atacatTTTT gtcgcaaagt	180
tggttttttg tacagaagtg aggtttggat agcttgcgtc gcgaagatga tcaagtaatc	240
tccaacgtct aatgtgattt tcgtaaaatg ttctgtacga aaatcgttca tcaaggaatc	300
ggtttgttgt gttctgtgtg agtgaagta aaccgcatt ttttgtacc ctcttcgatt	360
tttcattgcc gtcaaaataa ccgcaccaa cctgtctgc cgtaaatttt caaaagcata	420
ccgaagcact ttcgtttaca gttcaggaat taagccctgt ccccaaatg gttcgccaat	480
ccagaatcct tt	492

(2) INFORMATION FOR SEQ ID NO:1238

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 470 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...470

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1238

cccgttgatt agagggttat atttattgat tcagttgcaa aagaataagt gataagaggg 60

tgtcccat	acacacac	taacttat	cgagtgat	gcgcgc	gaggtttg	gacttcat	cc	120
aattcttg	ctgagaa	atgagac	cttgcttt	agtttagg	aactata	acgtt		180
tggtatatt	gagagtg	gtcacgag	taagaccaa	actttcc	atagccc	agc		240
atagtgc	ttgagct	atcaagc	actcttag	ctctgac	atgttg	gaaa		300
tagtagctt	tacccttg	acgtttct	gtggtgtg	gtgacag	atgttg			360
aaacggct	gtgaagc	gtcatat	ctctgtat	ctcacgg	gtgacac	ctc		420
ttcgatat	gaagcagg	agctgttt	agcaaat	agcttat	gtc			470

(2) INFORMATION FOR SEQ ID NO:1239

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1239

cggtctcc	gttccg	gtcgtc	gtgggt	gccc	ctccgg	gata	tgtggg	ctag	aagaagg	cg	60
ccaactg	acg	gagc	gctaa	gacgca	aacc	ctattc	cg	gg	ttctct	tgga	120
aaggcgc	atg	ccgat	gtctt	caatct	gtct	tacagg	tgat	ggacga	aagg	cagctg	180
acagtct	ggg	acggc	ggtga	atttca	agaa	caccgt	gatc	atcatc	acct	ccaacg	240
tacaccc	agc	tcaaag	actt	cgggc	agggt	atcggg	ttcc	gttcgg	aaaa	agacag	300
cgaaca	agga	gcata	gccgt	tccgt	gatcc	aaaaag	ctct	gaaaag	ggac	ttcagc	360
aatttt	ctcaa	ccgttt	ggac	gatatc	atcc	tctcg	accaa	ctggg	caaga	cggag	420
ccggat	gggtg	gacata	gagc	taaag	ccgtc	ttggc	gcgca	tccatc	gtgc	cggata	480
ctcgtc	ctta	cgatga	agcc	aaggga	tg	atagcg	acca	agggata	cga	ccttca	539

(2) INFORMATION FOR SEQ ID NO:1240

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1583 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...1583

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1240

gatataagagt	cccttgctgt	gcctgcaata	tcogtcaaga	tatgcctgtc	tctccgatga	60
aggcattcag	caaggagctt	ttccctgcat	tgggcggcac	gatggctatt	cgagggagtg	120
tttcgtccaa	atccgattgt	ccgttcttgc	cggcaatagc	tccatcacc	tgctcgagcaa	180
atcgctgtt	cccgaacgct	gacagctgca	atgcagtaag	gatcgcccaa	gccaaaggaa	240
tagaatcgaa	gcggaataat	gatcttcggg	attgtccacc	ttattggcta	cgacataacc	300
ggttttttgc	ttcgggcgcag	tatctcggcg	acttggtcgt	caaagaagtc	actccgggtct	360
ggttgtctgc	gacgaagagg	actacatctg	ctcctcgaca	gcaatataca	cttgcttatt	420
gatttcttcc	tcgaaaacat	ctccgaattg	accacccaac	ctccgggtatc	gacgatggaa	480
aactcccga	gttccaatgc	accgggcggt	actgcctatc	gcgcgtagta	ccggcctctc	540
ggctacgatg	gcttgccggc	tttgggtaag	gcggttgaa	aatgtgcttt	gccacattc	600
ggacggccta	cgatggcgac	taatgctccc	atatctatct	tactctatga	tttcgttctg	660
attgttgctt	gtcaggctac	gaccgagaag	gactaatcca	actgatagcc	gaaggcacga	720
agcagattat	ccctgtgcgc	cagtcttttt	cgaccttcac	aaagatttcc	aagaaaattt	780
tcttccgaag	aaacgttcca	aatcacgcgc	ggccattgac	cctacacgtt	tgaggccgcc	840
cctttagggc	cgatgattat	tcctttttga	gaattacgct	cccgatgatc	agcgacttga	900
tacggataat	ggtcttctcc	tccttgaatt	ctccacgacc	acttctgccg	catagggaat	960
ttctttttga	taatacagca	tatcttctca	cgaatgatct	ccgtaacgaa	aaaacgtgcc	1020
ggcttgctct	gagtgcatct	ttttcaaagt	aaggaggaga	tgggggaatg	aggctttcat	1080
acgcttctgc	agcaatccga	cgtaaagt	gttcgtggcc	gaaagaggtg	aatttctgct	1140
ttgggcaata	tattgcgcca	ctcctccaca	agttgtccaa	tgcttctcta	ttgctcaggt	1200
cgatcttgtt	gatgaccaga	agtaacggga	ttccattcgt	gatacgcgag	cgagaaaatc	1260
agcattctta	tcagcttctc	caccacgtcc	gtcacataaa	ccagcacatc	ggcatccccg	1320
agacagattc	ggagaactcc	cgcatttctc	gttggagttt	gtaattggga	cgagtactcc	1380
cgggtgatcg	gaataaacga	tttgcattct	cggcgtattc	aaatcccat	gattctatgt	1440
ctgggtggtc	gcgccttgga	ggtaatgata	aaatccgctc	accgacaagc	agatttatca	1500
gtgtactctt	cccaacgttg	ggtttccaac	gatattgaca	aatcccgaac	ggtgaccgga	1560
ctcctctatt	gcatttcgaa	gct				1583

(2) INFORMATION FOR SEQ ID NO:1241

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 459 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...459

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1241

ggcgttctga	atccgagttt	ctttcttggc	tgtagttcag	tttgttctga	taatggaaat	60
ctgttttggtc	gttatatcga	tgaaagaaga	accttttagga	tgtattgtct	aatcaggggca	120
tttttgcctc	tcacagagca	aaaccctttg	tttacacgag	accgaaaagc	agctcaagta	180
aaagctgtct	tgatgatta	gttagagtga	ttttctatct	ctgacaaaag	tcgtcgaacg	240
atattagtgt	cagataacgg	gaaacagttg	tgtgtttgcc	gaaaatacgt	atcttgcagc	300
gcaattgagg	ggaatcctct	ccgttgctat	gaggattgtc	tcagggtgtaa	tggtagcaca	360

acagggttttg gttctgtttg tcaagggttcg aaccttgtga gacaacaaca gagaaagggt 420
tgtatcggat agtgaaactt cggattgcaa ccctttctt 459

(2) INFORMATION FOR SEQ ID NO:1242

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 394 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...394

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1242

cgctgttcga ttccatgccg gcacatgcac ggagttgggt ggaggctgcg gagaatgcgg 60
tctcgtgcg gaggcgtgg atttctatcg ctgggaagac agaagggtag cgataccatc 120
aagatcctgt tcgaacgggg atacggagac tgccgacaga aaaagaaata gccgatatgt 180
acgggcgcaa gagccactct tcgttttgta caattccgga aacgtgatcg acgatgctcc 240
ggctcgggtg cggacgtttg tgaccggggc tttgcgtatc atgctggtga caggtcgtcc 300
cagactgata tattgcagcg tttgcaaaga agttattggc gacatttcag tcctgcaaac 360
atggtgacag gtgccgatgt acaccgtgga aacc 394

(2) INFORMATION FOR SEQ ID NO:1243

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 878 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...878

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1243

ccgcaaagcc cgtcgagagc tacgcacctt ctctcggtcg agggctttct caaagcctgc 60
acaccattgt gccggcgaaa gagggaaaga atatcgatgg ttggggagat ttgatcatga 120
gacaaaaata agcgggtctgt accaattttt tagcgaaacg atattacgat ccatcctaaa 180

gttcgggcca	aatcagttgc	acggggttgg	ttatgcgcaa	gatttttctc	ttttgtcctt	240
cttgaaacgt	gacgtgcacc	gaaaaagttg	atgctcggaa	tcggtcaa	gtttgacata	300
attaacatca	gcacgatagt	ccatttagag	ccggtgccat	agatggagca	gtttttgtag	360
ttaatacagt	gtacatttgt	gtcgataaaa	gggaacaacc	cttttcgacc	gcatcaacat	420
gctgataatg	aataaaataa	aaagtgaag	caatataatg	aacaagcaaa	aaaacaatcg	480
cgaacgaacg	ctcagcccga	acaggatacc	gaaagagacg	aacaactgac	aaacagtcag	540
aaaatgatat	agatagtgcc	cccgcagccg	aagagaacga	caaggtggag	acccggtgga	600
gcagctcacg	gctcagttgg	ctgctcttaa	cgacaccact	gcgtttgatg	gcagaatatg	660
acaactaccg	caagcggaca	ctcaagaaaa	gagcgaactt	atccgcaatg	gaggagaaaa	720
ggtgctcgtg	ggatcgctgc	ccgtgatcga	cgacttcgag	cgcgccctca	gcaatctggg	780
cgactgtcgg	agcctgctgc	catcaagaag	gagtggaaact	gatctacngc	aagtcatgga	840
ctatctgcag	agcatggtgt	caaaaagata	gaaccgca			878

(2) INFORMATION FOR SEQ ID NO:1244

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 441 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...441

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1244

gcgcagctct	gtcgggtggat	gggatatcta	tatggcacag	aaaggctatc	cgtctttacg	60
gtggatagtc	gcggatctgc	caatagaggg	gctgctttga	gcaggttatt	catcgctggt	120
tggggcagac	cgagatggcc	gatcagagtg	cggtgtggat	ttcctcaaga	gccaatcatg	180
ggtggatgcc	gatagatagg	agtacatggc	tggagctatg	gtggctttat	gactacgaat	240
ctgatcttac	gcacggcgat	gtcttcaaag	tggagtagc	cggcgggcct	gtcaagactg	300
gaatcgatat	gagattatgt	acggtgaagc	gttatttcga	tgcccacagg	aaaatcccga	360
aggatacgat	gctgccaacc	tgctcaaacg	agcgggtgga	tctgaaagga	cgacttatgc	420
tgattcatgg	agcgatcgat	c				441

(2) INFORMATION FOR SEQ ID NO:1245

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 590 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1245

```

ccccgaatga atggttgacg gatggagcgg gagtattcgt ccacataccg tgcagctcta      60
ttcgtctgtc tttgcgcacc tctgaagag cttcagaacc aaagcttcga acaaaagggt      120
aggatcgtgc atttccggag tcagcaacgt cctgtatagg agaggatgaa tttgccacaa      180
ggaagcgatc ctcgagaaaa agctcgggat catatccatt gtagatcaat tctgtacgag      240
gattacttct gcgagcagat tgcagtgccg ggggtgatacc gaaactacac gatcgctttg      300
tggagataat ggtttcggag agaaatatag cgggtgctgaa gcccttcacg agcagacttg      360
gcagtcgctt gccacgagga agaaaatcgt agtgctgtac tgttcgatca catcgcgcca      420
atccgccacc caggggcaatc gtgtgcctgt gcatagcggc aagccgtagc aaggggaaac      480
ttgcgatagg aagacaaaag acagcatcga atttgacact gggaaaagct ttcgccgctc      540
tttgtagaat cgctcttctt tctgctccca aaacaattcg ccgaacagcg      590

```

(2) INFORMATION FOR SEQ ID NO:1246

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 427 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...427

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1246

```

tccccggccc gacatggtgg aaaatacgaa gcagcagccg tcggagaggg aacgtggtga      60
cgaagatgaa agaaatcggc gccctcatcg gaggagaagc aatggcggag taatccttcc      120
ggagcttcat tatggacgcg atgcattgtg ggaatagccc tattcctcac acatattggc      180
aagcgcaagg aggcgggagc cgcattcgag ccgaataccc tgcatacttt atgagcaagc      240
agcgatggac acccctgcag gtaccgatac gcagcgtctg cttcagacca tgttgaaagg      300
tataagaacg aacagatcag taccgtggac ggcgtgaaga tcgctttccc gacagctggg      360
tacatatgcg caggagcaat accgagccga tctcagggat ctacaccgaa gcccgtagcg      420
aaaatgg

```

(2) INFORMATION FOR SEQ ID NO:1247

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 987 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...987

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1247

cggctcctta	ttatgaatca	ttttcagttt	ataaaatcga	ttccaataat	atatagagaa	60
cgaaaaacgat	tcgcatatag	accgttggct	ttcgatggcg	tttcgggaga	tgataaaaca	120
gaggcaccca	ccgagttcgt	gatcgaacgg	gtgggtgcct	tatatccttg	gttgtcgata	180
ggaggcttat	cagtcttatt	gatcacaagg	atttttgttt	gttgtagggc	gaatggatta	240
gatcacttca	gctcttggt	gagacggggg	cactgacccc	atttgtcaat	catgagagaa	300
cgtagcggat	gtccacgctg	attgtgcgct	gcagatcggg	ttcaactcga	tgtcaccact	360
catagcttcc	cagttgccc	cgaaaagcaag	acgatcagac	ggcgttctt	atcgaataacg	420
gggctaccgg	agttaccgcc	ctgatgtcgt	tgttcgatag	gaaagcgata	tgagactgac	480
cgttctcggc	tagcgaccat	agtttttggt	gcggaagagg	tcgaggatat	tctcctgtag	540
gcaaaactcat	cgtctttaag	gaatcctgct	tctccaatac	gcccttgctg	tcgtatgata	600
gttgtagcag	gcaccgtcct	gcggttcata	tcccttggtg	agccgtagct	catacgcag	660
gtgaagttgg	catcgctcgg	cagagccgtc	cggggtacat	ctcacgcaaa	ccggcaaaga	720
aaagacgctt	gccctctcaa	tggcataggc	attggccatc	gcacgcgcct	gaatagcgcg	780
agcacagcta	ttacgctctt	ggaaaagctct	actgccggat	cttttctcga	tagcttgcca	840
aacttttctt	tgtccatgga	cttgagcatg	gcacggaact	tgcgctataa	ggaaccacac	900
tcttgtagaa	tacgaagtct	gcatacttct	tgggtgcgct	ttgaattctt	ggcgattaca	960
ttcttgaata	tatcggggag	ttgtcgg				987

(2) INFORMATION FOR SEQ ID NO:1248

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 789 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1248

ggccgatctt	atctccccct	ggtttcggga	aaatggcgta	accgaagcgc	tgatcagtgg	60
cccaacaagc	aagaccgaac	cgcgcaaggc	gcgactcttt	cgagaaactg	ctcgcttttg	120
atatagtcca	gattcacatt	atcagctgga	aaacacaagt	atcgcggggtg	ggtcttttta	180
ccttaacccc	catgttcgaa	gcaggtcgat	caggttgttc	acatccaata	tatcggggat	240
gttaccacca	caacctcctg	atcgggtcaat	agcgtagcag	agatgatctg	caaacttcgt	300
tttttgaccc	ctggacgaga	atctcaccct	tgagactggt	gcccccttcta	ttacgtaaga	360

tgccatagag	ataatgtggt	ttatatgtct	gttgattatt	tccgccggaa	taccttggtc	420
cgtttggtgt	tgttattgtc	ctccgatccg	aagcattcgg	tatcgtcaga	tgacaactct	480
cctccgtcag	tctatgcgcc	cttcggacag	ttcgtaaaaa	tccttgaata	tcttgtagta	540
tccaccgtat	ctttgttcca	tgtcagatac	gaacgcttca	tctgggttgcg	atgagcagct	600
ccagcgcata	acgctcttct	ccctgctcca	tggcacagcc	ttgaggatca	tttcctgtat	660
gagatggccg	tagtgccgat	atacgagtcg	ttggccgagt	agcttacagc	tttaggcttc	720
cgttcgagca	gctccgactg	atgatctcca	tcggataatc	gatatccaac	ttgaatccgg	780
acatatagc						789

(2) INFORMATION FOR SEQ ID NO:1249

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 434 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...434

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1249

cctacagccc	tatcttggtt	cgcccgaaga	tttttgcct	tgacggacca	tagctgaaag	60
tctgcttata	gggggtatgt	cgaagtcgtg	atttgcggtt	toggcatacc	ccctttcagt	120
atatgcaaag	aggatgttta	gatgtgaagg	tggaaaggta	ttcggcaaag	gcggctacat	180
tctccgatgg	agtagccatg	aagtgaccag	acgaatggct	gagctgtcgg	gtgatacggc	240
ttgcccacgt	agaagtcgaa	tacggttttc	agtctttcga	tcagatcggt	gggggggatcg	300
ggaagatctg	gttggtttgc	ggagggtaga	ggaaggaata	acccagaagg	agatagctgt	360
cgccagatct	gctgccattc	tgttgccatg	agtgcaagcc	ggtagtaaag	cccacgcggg	420
aaaagcgtgg	caaa					434

(2) INFORMATION FOR SEQ ID NO:1250

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 582 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...582

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1250

```

aaccgggtag aaaagaagaa aagaagaatt acgtcaggcc ttattcatct cggaacaatc      60
gcgcaagaaa agccgcgaca gcacgtgac  cgatgcggct acgtggggcc tccgtgcaga      120
gaagcctatg cccgatcggc cgataaatc  ctgcgggtac ggtgatcgac ctgaatgcag      180
ccgattcggc taccctactc gcatacccg  gatagggcct acattcgctc gccgcacgt      240
atcctccgcc gacagcttgg cggctactat accgtgctac agctacagga ggttacggca      300
tggtactacg acgcttttgc gctctgagac catgggtcaa aatggaatca agccggatcg      360
tatcgatcta aaaggagtcg taggagatag taccttcggc atccttataa taactataaa      420
caacggggccc agatcaaacg gtgctacgca gcagccaatg gcagggtagc tgggttacia      480
ctactgaagc accgaccttc acaaaagaag acagtataag actttcaccc tatttcgatt      540
aactgaatg  atatgatcat caagattacc ccgacatcca ca                          582

```

(2) INFORMATION FOR SEQ ID NO:1251

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1251

```

gatgccgagg agcatgtgtc tgatgccacc caagctgtct attttggatc gtagtcctga      60
caggcttgca gtagtttttc ttccgaagca tatacatcgg tgccataatg ttttccggca      120
ggatgtcgat atggtcgaga aagtcctgcg caatttggcc agacagccta agttctcgct      180
gaccggtgga tagtatcgaa tacgggtgaag gcaatcacgt tgcggaagct gagtccttcc      240
tcgcgtgttt ttgtatcagt ttgtcgtaga cgatgaccgg cgaattgcct ccggcagagc      300
cagggtgtag tatttgtgtt gtgcttgcca ctcccgtata tccgtgctat tttcgttggc      360
aatgacttct gctgcttcgt cgttggtgcc ggatatattg gtcggtatat tctcgaagcc      420
gacgtagcag ggtctcttcg tagtattctg cggacgggta gtatcgctccg gtatttcgga      480
tagagaaatc tggacttang ttcaatctca tcttcttgtc gtttt                          525

```

(2) INFORMATION FOR SEQ ID NO:1252

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 858 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...858

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1252

cggctacaag	cgggagatga	gcggtgatga	catcggtgtc	cgattctcgt	caactgcgat	60
cagggggaaa	agatctatgt	acgatcggcc	gtttcattgt	cagcgaagcc	aatgcgctct	120
ataatctgga	agcggagcaa	gaagagggtt	caaaagtgtc	ggagggaatc	cggccaaggc	180
tttctccgct	atacgcctcg	cgctatagag	cgttgggagg	aagccctcgg	tacggtggaa	240
gtggaggagg	cacaccggat	gaaaagacga	tattctatac	cgcactctat	caccgctgat	300
acatccgaat	atcctacaag	atgccaatgg	agaatatcct	atgtgggcag	tggcaaaacg	360
ggtaatacgg	ctcacgaccg	ctacaccgtg	tttctctttg	ggacacgtac	cgcaatgtac	420
accgctgct	ctgcctcctc	ttccggagaa	gcagttggat	atggtacgga	cactgatcga	480
catgtaccga	agagcgggtg	gctgccgaga	tgggagctgt	acggacagga	gaccctgaca	540
tggagggcga	cccctcgctt	atcgtcatca	atgacacttg	gcaaagggcc	ttcgtgcttt	600
cgaaacggca	acggcctatg	aagccatgaa	aaaaaatcct	cttcggcagg	agcgacccat	660
ccgatccgtc	ctgacaacga	cgactactca	ccctcggctt	cgtacccgct	tcgcgaaaca	720
gtacgacaat	tccgttcgca	tgcgctggaa	tactatctgg	ccgactggaa	tctgtcccgg	780
tttgccacgc	acttgggcat	aaagaagacg	cagctctatt	cggaaacgcc	tcgtgggcta	840
cagacactat	tatataag					858

(2) INFORMATION FOR SEQ ID NO:1253

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 889 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...889

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1253

cgctgctctt	gataagatcg	tgcacagttc	tgttttctcc	tcccgattct	ctctttttgcc	60
gactctccgg	cttcttttgg	taggttgtct	ttcccgaag	cgggtatcga	gtgtcggggg	120
ttgtggagga	ttcttacgtg	caagtcgggt	caaacaccct	gttttcaaaa	ctccccaact	180
ctgcctctgg	tctgctccgg	ttatagatat	gtgtcttcgg	attattatta	tgatggaccg	240
atgattttgt	gggatatgga	gttccggaag	ccaaatcggt	cgatgctttc	ccgaggagga	300
gaaagctgct	cgggcagatg	cggtaaatga	agcagaaccc	gaacgaagga	atccggggatt	360
caagaatcct	ccgtgcgtac	caatttcgct	gaactgcatt	ctttgagccg	gcattgctga	420
ccgatgaacg	gggcgaagtt	tttggtcttt	cactctgccc	gagacactga	cgcgctggca	480
cctgctcctc	ttgcacatac	gaaggatatg	cggttgggca	tgaaagacga	aagcgtggag	540
tgcggaaaga	ctttatgctt	acaccaattt	tgccacgatt	cctgagaagg	gtgacaaggg	600
tacggcttcg	gcttcgattc	ggaacgggag	cgagacgtgc	agcagggctt	cgctccgtatg	660

```

gaactgttcg accctgctac cgacaactat tgggcggcga gaggttccg ttctcgggtg 720
aagccgggtg tacgggtacgg tgcgtttcc gctcgatcct gtctccggat atgatgctct 780
gggttacgtt tggttagccga aagccatgac ttcagcgatg gagagcaaca ctcatcgtgc 840
aactgccggc tacggagcga gtggtggaga ccataccgtg atctctacg 889

```

(2) INFORMATION FOR SEQ ID NO:1254

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 856 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...856

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1254

```

cggactttta ttttcgaaaa atagaggctt ttcgctattt gtaagtgttg attatcaaac 60
ggtgtctttc tctatttttc gaaaatctaa aaaacgaagc tccctctttc ttatttttoga 120
aaacggaaaa tcaagaaatc tcattgttat caatgagata taatcaactc aactgcaaaa 180
atagtgttgt agctgctttc tcaacttgta ttttcgaaaa aaatagaatc gttctctgcc 240
aatgcttacg tttgggatta ttcgtaactt gcagtcgctc aagtactcac tataatacac 300
agtccgtaag gctattaaga ctactgacc atgaggtaaa gtaccattct atcggactca 360
ctatacatat acagtcctga aggctattaa gatgtttcgc catgacttaa taagttttac 420
aatttttgac tcactataca tcacagtccg taaggctatt aagacattac tgatagcact 480
gcaatagcag gaataccaag ctactatac atacacagtc cgtaaggcta ttaagactgc 540
gattttcttt accaaaagcc agttttactg ttggctcact atacatacca aggctattaa 600
gactttgaca gcccttctta attccctct ctataaactc actatacata cacagtccgt 660
aaggctatta agacctatca tcgttgatc atctgataaa gccctacca aaaactcact 720
atacatatcac agtcctaagg ctattaagac tctaagcatt atagctatac catcattaat 780
acttgctcac tatacatata cagtcgtaaa ggctattaat acttgtgagt ataggctttt 840
ctactccttc ttcctc 856

```

(2) INFORMATION FOR SEQ ID NO:1255

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 858 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...858

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1255

tccccgcgat	agggccgcta	caggtgagca	atgctcgcct	gcttttccca	tttccatgcc	60
tgaagatgag	gggggtgtac	ggttggtggt	gaacaatagg	atgagtccga	cctgcaagtt	120
gctgtcgtat	cgctaccttc	atttgtagcg	tggacgatcg	ggcattccgg	ctgcaagctc	180
gtgagcccag	agagctaata	tttcgcttgc	cgtaacctgc	aatatgcctc	cggggatgaa	240
ggacggcctc	tcgttttgga	ggtaacctct	cccgaaacag	gaaaaaaagc	cgttattccg	300
tcattggtctc	cttgccgctg	gtggacaatt	tccttgccct	cacgcagccc	aaacaggcgt	360
tatggaactc	agcacctatt	tggacatggg	acgttggtatg	gagagacgac	aaaggctgcg	420
atagagattc	gcaacgtcgg	tccggccctc	tccgattgca	tagcgtcacc	acacgcaatc	480
cggctttgac	gccgtacccg	accggacgga	gataaagccc	ggcgggaagca	cactattgcg	540
atcgtctgtg	atccgcaggt	gatgaaggct	gaggggtggc	agagtatact	gccgatattt	600
ccattatttg	caacgatccg	caggctccgc	tacgtcgatc	aagggtcaaag	ccgaactgta	660
gcttttcccc	gtagagctgc	tgccaacggg	actgcaagcg	agattgcccg	cagatctgat	720
aaacagaaca	ttaacatgga	cgaactactt	catcatcccg	aaaatgatga	ttgctataag	780
ggacgaaagt	gaacaaaggc	gtttccaata	tgcccatcat	caatccctac	ctgataggac	840
aagacgcaag	aagcttga					858

(2) INFORMATION FOR SEQ ID NO:1256

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1101 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1101

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1256

togtatacctg	cttaccctcg	gtatccccgt	atacgactct	gacagcagac	caaattggctc	60
aatgatcaca	gccctgtcgt	ccgacaggca	ctgacggggt	cataggcagc	gatctgtacg	120
agaacggcat	actcaggcga	gacaggcggc	tacggctatc	ttctcctccg	gcgatctcct	180
cgaacaggta	aacgggtcat	acatccggaa	gtcaaaaaag	acttctgcca	atggcggttcg	240
gagtggaaac	ggatctctgc	gccatcgaga	gtgccattct	tttcagctcg	ggatcaactc	300
cctgtgcgat	acggtaattc	gggtcgatgc	ccccgaaaag	atagacaaga	gcggnccgatg	360
gctcgcgacg	gctcatcggc	agaaaccatg	agcagcgtat	gctcagccaa	gaaagagagc	420
agtcattggc	caaggccgga	gagaccatac	ggtgctcaac	gccccacccc	atctacttgt	480
ccctcaagtc	tcagaattat	agagacagta	cgaacaaaga	gacccaatcc	gcccgatcgc	540
tttaggggaa	taagacaggt	gcttccctgc	tctcctaccc	ctcgacagaa	cgaataactt	600
acttttgcag	acagtcaaaa	actgaaatac	aatatcataa	cagaaaaata	tgttgcaacc	660
catcctttcc	atatccggca	aatccgattg	tttcggctcg	tatcgcgcgg	aaagaatacg	720
ctcatagtcg	aagcctcgac	acgaaacgta	gaacccccac	atacccatcg	ggaccgagta	780
gttccccttg	gcggatatatt	ccattttacac	catcgaagat	gatgtccctc	tgcgaggtt	840
atggaaacga	tataccggaa	gaacgaaggc	aaacagctcg	atctcctgct	ctcacgaagg	900

acaacgactc	actacgtgct	ttcttcgggg	agtactgccc	gaatacgacg	tcgatagagt	960
atatccgagc	gatatacgca	gattatctct	tggtacaatc	ttctggtgga	caacggattt	1020
accactttct	ctcggataag	aaaccggcgg	aagaagagac	gacggaaaaa	gaatagcaac	1080
ttcggccggg	gatcgtctag	a				1101

(2) INFORMATION FOR SEQ ID NO:1257

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1257

cgaagtatcc	gagcaaagaa	gaaaatagaa	aaacgataaa	agtagaatag	catacgacaa	60
tggcaatgca	gtatctgcaa	agatctgggg	gataaaaata	tcatgacaat	gcccccaagc	120
ataacaatag	aggcaacaat	aaaataaccc	accctgaac	ggaaacaatc	tctcgtattg	180
tctctcgatc	attctcgcaa	tcggcttata	taatgtaaat	gatatagccg	tagctatccc	240
catctagaca	agttgagaag	gcctaagaga	ttagtaattg	tagtattgag	tcctggagtt	300
cggcacctaa	ggcatcaata	aaaactctac	gtgagaagaa	agtaaaataa	taagaagccc	360
ataaaacaaa	agtgagatta	tactatTTTT	tgactattgg	tcgttcgaga	agtctccacc	420
agatatttct	ttatagttga	taaataataa	gacattgcac	aaaacataaa	ggcattgctc	480
cacctcatat	gggaatctta	gagctaaggc	caggcttcat	ttgatagtaa	aaatagccct	540
cttatcctgc	atactgctaa	tagtccaagc	cataaccoga	tccaccaatc	acgatgttcg	600
tcatagcgat	gaagtctagc	tagcgacacg	aagagctacc	aggacatgat	gtcgattgga	660
taagtcgatc	gggataatac	tgggcaacca				690

(2) INFORMATION FOR SEQ ID NO:1258

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 686 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...686

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1258

```

aacaaaaaga cttggaagcg cagctgcgaa agcagaaaaa gcaagccgag ctctgaacag      60
aaagatcgag aaacagattg ccaaggaaat agaagctgcg aacgtcgtgc tcgagaagaa      120
cgtgaacggg tggcacgcga agccaaacca agggtaagcc gggttcctgcc gaaccggaac      180
ggaaggcgga gaccaaggcg gctatgctat ggatgcctct gagcgtgctc tctcgggcag      240
ctttgacaga acaaaggctg cctgcccggc cccgttcgcg gcagataccg aatctaagcg      300
actttggcgt gcatcagcac agtgagctga aaaaagtaca agtaataatg gaggtatcga      360
catcgctgta gcaacaggat ccgatgctac cacgtnttca atgggtgtagt gtccagtgtg      420
ttcgtgatac ccggttataa tcggccgtaa tgggttcgtc cggttaactat atcacggttt      480
atgcaaatct agcaaagtgt atgtaaattc cggcactcgt gttaaaacgg gtcaggctct      540
gtcgtgcta tacggatcct tccaacaacc agaccattat tcaactcgaa tctggaaaga      600
acgcagcaaa caaaacccaa gactatgggt acgatagcat tccaacgact ataatacccc      660
atttcgagac ttcttgatt ccgaag                                     686

```

(2) INFORMATION FOR SEQ ID NO:1259

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 434 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...434

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1259

```

tcgataccgt ggtatcgat gtgatcgctg tggagtcgag gtaacggaaa gaaagttcgc      60
cgtgagcgta tggggcacat ccatttggtc gtacctgtgc tcatatttgg tatttcggtt      120
ctcttcgaa taagatcggc tatttatagg actacctacc aagaagttgg atgccatcat      180
ttactatgaa cgctacgttg ttattcaacc ggggtgttgc gaagggttga gtcaacttga      240
tctatgtcag aggaagaata cctcgacaag cttgatgaaa tagagcgcac tcacagggca      300
accaaaattt ggaggatacc aatccggaca aatttattgc caaattgggg cagaggctat      360
ttatgatctt ctatgtcgtg tggatctgga tttatttcct acgaattgcg agatcgtgcc      420
aatacagatg gttc                                     434

```

(2) INFORMATION FOR SEQ ID NO:1260

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 614 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...614

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1260

aacaatatga	cgggggtgga	atacagcttt	ggcaaagtct	gcaatcctat	tacggggatt	60
ccgtattcgg	attcgtgagc	aatagcggta	tcaagataac	cgcacggact	gcccgaatgc	120
gccggatatg	ttcagccgat	acggttacgc	atcatcgaag	ctcgtctggag	cggtaaggga	180
tcgaccggat	acgaggtaca	cttcatgtca	taggacagga	caatctggcc	atcgtgacga	240
acatacttcg	gtcatcaata	aagaaccagg	cgtttttggt	ccgagcctat	tcgacaattc	300
gaaggacaat	ctcttcgaag	gggtgttcac	ggtcgaagta	cccataacctc	gacactatcc	360
atcctccttc	gcaagatccg	tgctacgcac	gggtcaagtc	ggccgaacga	cattgacagc	420
cccttgcaag	tctttagtag	tgagtacatg	gtctggatga	tgtgtatcgt	attcttgagc	480
agaacggctt	caagtcctta	gtagtggagt	acatggtttc	agacagaata	gcgtatatcc	540
tatcaatatc	gngtaatgtt	ataagcggat	aaggtatggc	gagaatcctg	caccggcagg	600
aaaaaagctg	acgc					614

(2) INFORMATION FOR SEQ ID NO:1261

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 615 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...615

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1261

gaccatagta	tcctctcata	ggagaccata	gtatcctctc	ataggagaca	tagtatcctc	60
tcattgtgaga	ccatagtatc	ctctcatatg	agaccatata	tcctctcata	ggggaccata	120
gtatcctctt	gtatgagacc	atagtatctc	tcgtggaagt	tcattctttg	tatctcaggg	180
aaagaccggt	gagcagtgtg	tcgctgtcaa	gtnaacagag	agcagtgccc	gaatacgttg	240
ccaatgataa	gcataatcgac	ttggttcgaa	aatacattcg	ggctttccta	tatcattcgc	300
tgccatgacg	tccttgaatg	aaacctcttc	tcgtcggatg	atttccttgt	tgtgccatcg	360
ttttgtgtca	ttgagatcat	accataaaca	caaaaacaat	cggccgacac	actgtaaaat	420
gaatggataa	agtgcctgct	tttgccgaaa	ggctctcagaa	aagaaaaaaa	cacaaagagg	480
gcgcacgcgt	agatgcgccc	tctgcttttc	agtcgcccct	atcttcaggg	gattattttg	540
cttgctattg	agccttttga	acagagccat	tcatgacaac	aacccgatct	gctgcttcaa	600
gagtctgccg	aaact					615

(2) INFORMATION FOR SEQ ID NO:1262

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1262

```

gtgctgttcg gtcttggcca tgaagtccct catatctacg ttgcctcgcc gtcgcaagct      60
accgtcaccg tatcgtatcc gcactggatg gcactggcgg attggtaccg tgggcagaag      120
ccggcaggat aaccagatgg cgggtgtcctg tccgatgctg ttcagatagc cgcgaatagt      180
gagcaatccg gtgtatcgcc tgctgcaccg gagttagggt ggagcgaaaag tggcatcgaa      240
accgggataa cggccaagta acgttcgagg ctttcgagca tctcgttgta gcctccgtct      300
ggtctttcgg agcatacggg tgaatggcat tgaactgcgg catgagaggt tgaacagctc      360
ggatgcggca ttcagcttca tcgtacaaga accagcggaa tcatggagtg tgccagtga      420
atgtccttgc gttcgaggcg ttgatgtagc gcacagctc cgtctcgggt tggtagttgt      480
tgaatacgtc tagtccagga agttcgagg acgggcaaaag gcaccgtcga aataccgttg      540
tcgatggcaa tgcctccga gatgtctcct ctttgcccaa aacggattag aagatataga      600
gcagaacacc gaggttcgga cggcagtgta                                     630

```

(2) INFORMATION FOR SEQ ID NO:1263

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 602 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1263

```

gccaaagccg ccgatattct tttgcgtaga ggctattttg tttacaacct ctgggcggat      60
ataaaggcta tccgtacaag taagtgtatc ctggagagtt tcgggacagg tttctctact      120
tgctctctac ccatagctct tgttttctct cctttacccc gaatggatcg tccaaagcct      180
tcatatattg ttcgaaagca gccattctct gcttggttgt cggcaggcct ttgtttgcgc      240

```

```

agagcatgtg gactacgtcg atccgctgat cgggacgcta agttcttttg agctagtgcg 300
ggcaatacct atccgggtgat cgggtttaccg tggggaatga atactggaca ccgatgaccg 360
gtgtaccggg tgacgggtcg caatatacct accggcacac aagattcgcg gattcaaaca 420
gacccaccaa cccagtccctt gatcaacgac tacggccaat tctcccttct tccccttacg 480
gcaccgcaga gccatcatcg aacgactcca tagctctgac taatggtgca agcaactctt 540
tcggacgaac aagacctcgt ggttcttcgc acaaagcgga gacggcgagc catactatta 600
ta 602

```

(2) INFORMATION FOR SEQ ID NO:1264

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1264

```

aaggcctttt tccggggcaca cttcgatcac acacattttct gtgataatca gtttacttgt 60
ccttttgccg taagtggcaa agagcatttt ttcatgattt ggggttacct ttggcagtat 120
gtcccatagc taaaattacc ttgcgggtcc tatcagcaaa tccatggctc ctcccatacc 180
gggtgctttc ttgccggaat cagccagttg gccaaagtct cattttcgtc tacttgagct 240
gcttcgagta cactaacatc cacatgccc aacgaaatga tggcaaatga ggtacactat 300
caaatgaagc agcccccgga atagccgtaa tggagcctcc cccgcattga tcagataagg 360
atcttctttg cctgtttccg gagcagggcc cacccaatca tgccattttc agactgcaaa 420
tatacttgca ctccgggttt tggttaattg gcaccatcgt cggcagacct ataccgaggt 480
tgaccacatc ccatttttca attcgagggc aacacgcttg gcgatcactt ctctgattta 540
tctttttcca tgatgaaaaa tattttatcg atttctattt gttattcatc tcttatgaaa 600
ctcctgagcg atgaatgaag caacatcatc agcatattat tggcaccgaa tcctgcatca 660
tagccaagct ctttggccaa ttcatagtga tacgaggccc tccacaggcc aagatcatct 720
tatctctcag acctttgcct ccattgagttc gaccagctct atcagattct tgatatgcac 780
atcttttgtg ttactgtntg agataccaaa agancatcgg cattcagttc gatcctttgg 840
naataaattc ttcattcggc acctgactgc ca 872

```

(2) INFORMATION FOR SEQ ID NO:1265

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 726 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...726

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1265

```

gttgtgatcg tagccgagag ggtcatatag ccgccgggca atgacttgca agacacagaa      60
tatccggggc cggggcagcg tgccggagcg caaacagtcg cccgtgoggc cgaatccggg      120
agctatctca tgaatatca gcagtaccgc gcttcggagc agagtctgcg agcttcgacg      180
agataccggg gatagtgaat tacataaccgc cggctccctg cacgatgggt tcgaggatga      240
gggctccagc tccgccccct ttgccgagag gaggtctcgg agcgggtcta tgtcgcccgc      300
agccattcgc caccgaagcg actcttcggg tgtggcagga aatctgtacg ggcaatgctc      360
ccgagaaaat gccgtgcata ccggtaacgg gacgcatacg ctcatggcgt gccagggtatc      420
gccgtggtag cccgaacgga tgtagcgaat cgggtacgct tgcctctgtc gcaggcttgc      480
tgatactgca agccattttc atggctacct ccactgccac cgaaccgctg tcggcataga      540
gattttatct aactcggacg gcaggatgct cagaagcagt tcggccaatc tacggccggg      600
cgatgggtga aaccgccgaa catgatatgg ctcatctcga acttgccggt ctacggccggc      660
attcagtcgc ggatggttat agccgttatg gctgccacca cgaactatac cgtcgatcag      720
ttcgcg                                     726

```

(2) INFORMATION FOR SEQ ID NO:1266

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 573 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...573

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1266

```

ttccccttat aacgcgggatg aggcaggcgc gtgtacggta agtcgaatgc tgatctatct      60
gtgccgtact catgggtgga aaagggggat tgaccacgtg gtagaatctc cgacggcctg      120
aagtatgcgg tctgcctcgt agcgattctc tgtatctcta tctctcggaa gttctgtgcc      180
tgcttgcggt tgtccgcaaa cattcttcat gggagaagag atgccgatcg ttttcgcagg      240
gcacagtgtc tttccttttg gaacaagata ggctatctgc cgaatgctct tcaactattt      300
gaaccgggtc gccggctatc aatcgctgtg ctatctcgtg caagggaagt ctcccatgcc      360
gtagatcagg aggtcggcac ctgattgata gatataccgg ggagcaattt gtccctgcaa      420
tagtcgtaat gcgtcagccg gggagagaag cttcgatccc cccgacaatg accgggtacat      480
ccggaacagc tctttcagta tgcgggtgta aacgatgggt gggtagtcgg gacgcatact      540
gaacgtctgt ccggtgtgta agcgtcttcg ctg                                     573

```

(2) INFORMATION FOR SEQ ID NO:1267

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 910 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...910

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1267

```

catatgattc atcatagcga ccgaggcatt cagtatgccg gtaagagctc accgatctgt      60
tgcattggncg aggctggcgc atcagcatga ctcagacgga gatcctctgg cataatgcat      120
tggctgagcg gatgaccaat acggctcaga actcgtggca catctcctct tcgaagcagt      180
cttttgatca agcactcttt ctgtagaaca agccgtgcgc atgtacaacg agggcggtcc      240
acatcagctc taggggcgaa aacgcctatg caagtcattg cgccagagtc taaaatccgt      300
tactggcaag gatcgaacat tggccggaga ttgccccga gcttaccgaa ggatgaatgt      360
cagacaaaga gctaactttg ctctgtgtcaa ccaaattaga cttaagggtg aggggtgtca      420
acctaaagta gaattataga agaaccagta aaccaattgt agaactatcc cgcccaactg      480
tcaacttttt cagtacacgt caagcacaat tgcggatcga aaaaagatgg ttcgagaaaa      540
aataaaaactc gagccaaaag caaaaaaatc tcgcgcgtaa agattttctt gtgggttcgag      600
tttttgagat tttaggctcg gtaattctcc gtctttcgca caaaaaacia catacgactt      660
ttctcagtac acgtcacaaat caagggaagt cgggaaggat cagtcgcccg gatagggatc      720
tgcagaagga ggaggggtat gactccccat agtttggttg ggcgcggtcc catcttcagc      780
tccaaatgcc gccttgggct atgtcgctat gttggaacca tgctttatcc aagttttccc      840
gttgagcacg gccttttggg tgtatttggt ttcagctccg gcccgttggc gatgatcggg      900
ggatcctcta

```

(2) INFORMATION FOR SEQ ID NO:1268

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 799 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...799

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1268

cgaaactaaa	atttcaatcg	gatcggcttt	catttcttgt	cttcttcaga	ataatgccac	60
ttagtttttac	gataaaacgt	agtgcggaat	aggaggggtg	ggtacgagat	ttgcgctcga	120
tgcagggacg	cctttgcttc	cataggcaaa	taccagggga	cgatgaactc	acactcgtct	180
ccgataacca	tattctcaaa	gcaatacggg	agccggtgat	ccgacttata	cttctcattc	240
ctgtaagtgt	gatacgtgcc	ggcttttcgg	agttatagtt	tccatctacc	atgaatttct	300
tactaaacga	tacgttttgt	agtggacctc	cacacgggag	gtgcgacgag	atgctctgta	360
cccgtaccgt	ttgttatcca	gcgcatgtaa	actatgcggt	cgatccatca	acagataactt	420
tcttgaagtt	ggtgctgtcc	gataggcggt	gaaggccact	tcgttgctcg	gacgacgctg	480
tttttctca	tcggtctttt	ctcgcacgag	gagaaaacaa	ggaagatggt	taccagcata	540
gccaagggc	catgatgata	ttctttttcg	ttttcatagg	tctatctttt	gagcaagctc	600
ttgaggctta	catattccga	gataatagca	ttcaaacgct	gatctccaca	cgctcctgct	660
ccatcggtgc	acgatagcgg	atggtccggt	attgtcttcg	agcgattggg	tgatctaccg	720
tgatacagaa	aggggaccca	ttgcatcctg	acggcggtag	cgtttgccga	tagaatcctt	780
ttatgtatgg	caggcgaag					799

(2) INFORMATION FOR SEQ ID NO:1269

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 756 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1269

gtgtcggaac	agctaagaga	cgggatagcg	ttcttcgccc	gaaagtaccg	cacatgaaat	60
acctggccta	tttccaagcc	tataccaata	cctatggaag	caagccgaga	tcattccgtaa	120
atacgaagag	gctctgaact	actacgagta	gtaggcatta	ttataggtag	cagaccggac	180
tgcattgccg	attctctttg	tcctacttaa	aggatttgct	ggaaagagta	ttcgttctcg	240
tggaaatggt	gtagagagta	cactggatgc	cactcttcgg	cgagtgaatc	gtggcacctc	300
tggtcggata	gtatggcagc	tatcgagcga	acggctaaga	ccgattgccg	atagggtgtc	360
atctgatcct	cgggctgccg	ggggaaagca	gaaagatata	ctcaggcacg	cggacaagat	420
atcggcattg	cccgtcacta	cctgaaattg	catcaactgc	aaattatccg	cggtagcggt	480
atggccaaag	atatgcagag	agtcctcgg	actttcattt	ttactccgag	gaggaatatt	540
cgatctgtgt	cttgatttca	tcgaacgcct	gcgtcctgat	attgtgctga	gcgtttcgta	600
tcgcagtctc	cggccgaact	tctcctgatg	ccgaaatgga	ttgaagaatc	acgagttcac	660
acacctgate	cgtcgtcgca	tttcaaaacg	cgatatcaga	cagggacgga	ctggaaaagat	720
aattcccttt	gctattctac	aggaagaaac	cggtgt			756

(2) INFORMATION FOR SEQ ID NO:1270

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 761 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...761

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1270

```

ggctgataga gcgacaatta ttcgggcacg tacagataga ggaacgaggg agaataaaaa 60
acctcgtaca tgatgggaca ttcgtccatt gccagcacca aatctacgct taaatcacag 120
gccaaaagat tgcaaaggat atggagagct gataaagaaa tatacgggtg ccgttgtaaa 180
tagaagaggn tttattaaga tccacaatag gattgtgtag ttttgcatcc gtcataagg 240
ctccttacgt catgaacaga ttaagggaag cattaaaaga aaggggaatt actcaacgga 300
gctttcaact cgcttgggca agagctttaa tatggtcaat ctcatgttgc caacaagcat 360
cagccctcaa ttcctaccct cttccaaata gcgagatttt ggatatggac gtaagagatc 420
tcttggtatc taacaagcaa caaacaata atgaaactga tagatatanc aaaaggatcg 480
gaacacgacc cagtcttttc tcagacgaaa agattgccac attagagtct cgtatccctt 540
aaaggaaggg aaaaaagggc ctatttccta tctttcctgt ctcgttcgaa gcaggagatt 600
aagcttaccc ccgaggaggt agtgcgtcag ttatatcaat ggtgcttacg gaagactttg 660
gttatccact ttctcgcatc aaattgagta tgaggttaacc ttcggtcggg aaaagaagcg 720
agccgacatc gtcatttcga caagcaacaa acagatagcc c 761

```

(2) INFORMATION FOR SEQ ID NO:1271

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1137 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1137

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1271

```

caagatgnca aggaggtggt gaaagcagca agacagcatc ttgaaagaag cttgtcttcg 60
atthttgtaga tcagatctac ctgtggggta gcttcattgg tgcgatggcc ataataaagt 120
cagtgttagt cggataatcc ttattccogt tgggagcaag aaaggcaca aaataataat 180
gaaaatgcac ctgactcgct attgcaggaa taattttcca cggtagcaca gagctacatc 240
attggggggt accccaaaaa gacaacaaac ttaaaggccg aagagatagt tgagttgacg 300
ccgagagtca ggttcgagga tctgccgtga ggggtcttgc gccgttggtg aggagatcat 360
ggaagccata gtatagccgt cctccaatt cgaggctccc agtctgccg catcgaatcc 420
gaatccggga cctccgcaa cccattcga agcgtccgtg cagaccttg gcatagcgtc 480
gctgctgcag tcggtgaagt ccgagccttg cttgacggtt ttctctgcaa tgatgaatcg 540

```

aaccgaggcc	ccaaattgag	aaaagcatag	agacctcttt	gccggattta	atgtgtgtga	600
gcagaggat	cgtcacacaa	tcgaatgtgc	gacgatagca	ttgtccggct	tttcgtcaaa	660
tttctcctcc	catcctaagc	gaatgtgctc	gcttcggctt	gaaggccac	tttcaagggtg	720
cccgtactct	cctcattacc	cgtacaatga	gaccgctcga	aggagccaac	aagagctttt	780
ggtcacagcg	ggattgaaga	gcaccttatt	ggccgaaacg	cctccggcta	cccgaacctgt	840
acacgtagcg	actgcttgga	cgtttgggct	gtggccgagt	tttcagacat	aggaaaacaa	900
aaaggctgat	acctattcta	cgaatcatgt	tctcttttga	tgagccggta	tggacagggga	960
aagtatggag	cagtgcatag	aggagttatc	gagatacggg	cacacgatcc	accctccgt	1020
cggagcgtac	gtgacgagga	agagattcag	attgacaaaa	ccactatcgc	cccttatccg	1080
cggaattgga	agtcctctg	caaccccgta	gaaggaagca	tggagagtgt	tcctgag	1137

(2) INFORMATION FOR SEQ ID NO:1272

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 496 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1272

ccggcgata	tgctacccc	ggtactccct	ctacggaaat	caccgagcaa	tcctaaaactc	60
tcggatggct	aaggaaagaa	atgtccatcg	ggaatggggg	caaacgaaaa	aaccgctatg	120
gaatcaagct	ctcggcatgt	cctacgcggc	aagcgcgctc	tcgtatgtat	gaagcatgtg	180
gggatgaacg	tagcagagac	tgctttatga	atgctgccat	caccggtgcg	aatggcggtg	240
tggtgtcgtt	gctgccgacg	acccctctat	gcactcgtct	tcaaaatgaa	caagcttttc	300
gcgtgtatgg	ccagttngcc	atgattcctg	tgatggagcc	atcaaccaac	aggaagctta	360
tgacatgacg	cgccttgctt	tcgatctatc	cgacgttttg	gtacaccctg	catgatgcgt	420
attacgactc	gtctcgctca	cctcgtgccg	gtgtcgttca	gaccgagccg	atcggagaga	480
ncgaattgca	ctgccg					496

(2) INFORMATION FOR SEQ ID NO:1273

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 673 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...673

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1273

```

gatggaagag tcgaatcggc cttcttcgtc tttgaagata tccttgggca ctccaatacg      60
gcattcttct gacgttcgcc ataggcattc tcgctcttag ctogaagtcg aatttgtcac      120
ccacagccag cccgaacaaa tgcttttgaa ctggggcaac atcataccca taccatgtat      180
atagcacaac ggccttcggc cgtggcctgc tccatcaatt ctttctctc tgccaaccct      240
acataaagtc gtagctacag gtcacaaatt tatttgctga aatactcatt ttacaaaatt      300
atcatgttaa acgctaccaa aagtagtata aaaagggatt agtataactg ctcttaagaa      360
acagacgggc aaatttcgcg tctgcaactt tcgagccatc acttttcgca tcggcagcac      420
tcgtttgaat ttatagtagt atctttttcc aaccgtgcct ctgcaattta ttgtccaaac      480
tcttattgat atcagctcca tgcggcctgc cgtcaattcg gcttttcgat ccacagaga      540
cgcttttgcc gaacgtcttt ccacagctcg tagcgttggt gtccagctgt tgtacagcgg      600
aagaaaagca tcggtcttct tctgcgtcag ctccagtcaa ggatgaagaa agcatggcgt      660
ggcatgaac tcc

```

(2) INFORMATION FOR SEQ ID NO:1274

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 649 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...649

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1274

```

gtatagttcg ttcggttgta aatatcgccc atcggtatcg tcttgacaga aattcgagcg      60
tatccactct ggccgaaacc ggatccgaag gaggttggtg gaacctccga tcggagacag      120
atcatcatcg caggctaccg tgaggaggcc attaacgaaa aaacaagaag aaggatatctc      180
ttcataataa tggatgatcg tgggtttgcg tggaaaggca gataattaac gctaatacgt      240
gctgatatt gttttttacg gcgcagtcgg gcagaatgag acaaatacagt tggcgtaaaa      300
agatcgctat agaagttatc gaaagcttct tcatagtcct cttcccttgg tatgggagga      360
aagccttccc ctcaaagag gatatatagt cgtcagctcc ggtgctatgg tctccgatcc      420
ctgaatgaca ccgtcggcat acggatggcc agacggttca aggccaaata gtcggacgac      480
tgctccatta ggacaggtca tcgggcgtga tcttgctgaa tccgagctta ccgaaagagg      540
tcttcgggga tcaactccctg tccggcatca tcgtagacgg agtagacct tttgcttttg      600
caggcaagga tcgtccgata catcttcttc agatccagca gccaacgcc

```

(2) INFORMATION FOR SEQ ID NO:1275

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 717 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...717

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1275

gcaaggagca	gtttttcttt	cattgttata	tccccgcct	gtagcatata	tacagagtca	60
gcacttgcc	ggtaccgaag	cggccgatta	gcctgcagat	ttcagcacct	tggtcaccag	120
agcattttct	tgatagtagg	aggcatatac	gatatgtccg	ccagggtggt	cgggagctta	180
tccacaaacc	ctttgcagca	ggttgcgcgc	ttttctgaag	atggtttctt	ttcatgtcat	240
tgatgcgtct	attatgctta	atacgtctgt	tattagggtt	tctcacctat	tcgatatctt	300
tgtgtctgtg	gcaggaggga	acgaatcttc	caaccattgg	cttaacaaca	acaaagaaac	360
agcttattat	gaatagtgtg	caatttcgcg	aaaacttctg	agtctgcaag	acaatatgcg	420
caattttgcc	ctgactctga	cgccaatcgg	gatgatgcag	aggatttgct	ccaagataca	480
actctccgtg	gcttcataac	gaggacaagt	tcgttgataa	tgtcaacttc	aaaggctggt	540
gctcactgtc	atgcgaaata	tcttcatcaa	caactatcat	aagttggtcg	ctcaciaaacg	600
gttatcgatc	ccaacagcga	tccgtacaat	gtacctcctg	aatgaggggag	gagaggatac	660
gcccgatggc	actatgacca	tcaaaggata	ccggcggcca	tgcatcgttg	atgagac	717

(2) INFORMATION FOR SEQ ID NO:1276

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 693 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...693

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1276

gcctccgatg	tggtgaatgc	cgtgatcatg	gctccacttc	gcgaactggg	cagcaaatag	60
atcagcaagt	ggaagggttt	tcttacttca	tgccggtacg	gccgtagcca	tatacggggg	120
tacggacggg	gtggcatggg	agcagcacgt	cgggggatgg	ctatgggggc	ggacatcgtg	180
atagccacac	cgggactctg	atctcgcatc	tgaatctcgg	ttcggccgac	ctctcccacg	240
tctccacttc	gtattggacg	aagccgaccg	catgctggac	atgggtttct	tcgagacntc	300
atgcagatnt	ncaagcagct	gccgagttcg	tgccagacgg	ttagttttcg	gctacgatgc	360
cccccaagat	ccgcaagctg	gcagcatcta	tttaagggat	ccgatagagg	tggagatcgc	420

```

catcagccgt cgcgccgaga gatcatgcag agcgcataca tttgtcacga agcgcagaag      480
ctgccgatac ccgcaagctc ttcgagcagt cggctccgaa gcgtaccatt attttcgccc      540
ggccaagctc aaagtgcgtg agctgacttc cactctccgc aagatggggt caatgtggcc      600
gatatgcaact ccgatctgga gcagtcccag cgcgaacggt gatgcgcgac ttcaaaaacc      660
gctatgtgga tgtacttgtg gccactacat cgt                                     693

```

(2) INFORMATION FOR SEQ ID NO:1277

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 627 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...627

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1277

```

gggccggtga caagcgtaac cgaagccccc aattcggcca aacgtttctgt atgcagaagc      60
ccatccttcc ggaagagtag ttgccgagaa aacgtacaga togagtttct cgtatgtagg      120
gccggctgta accaatgctc tcttccagg aggggcttac aatcgttctc cttgaaaaaa      180
gcctccaata tctccaaatg cactccggct cttccatccg cccctttcct accaaatgac      240
tggccattcg ccttcacccg gctctatgat atgattgcca taagagcgta gtattccata      300
ttgtgctgcg tactcggatg tcggaacatg tccaaatcca tagcggagcc acgaatacgg      360
gagccttggc ggaaaggtaa gtggttacca actattgtcg gctatgccat gtgccatctt      420
gcctatcgta gaggctgtgg cggagctatc agcatagcat ccgccagag actgagatcc      480
acatggctgt ccatgtacca tcccgctcgg agaaaaatc gctgatgaca ggcttggaat      540
cagagccgag aggggtgatg gagtaatgaa ctcccttgccg gcaggagtat gactatttgc      600
acttcagcct cttttttgat gacgagc                                     627

```

(2) INFORMATION FOR SEQ ID NO:1278

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 579 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...579

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1278

```

ggctgtgaag tttatgaata gattcgggga agaattgata agaggtgtcg ctggccgaag      60
tcatatacac gctacttgct gccattgaa gggttttctt ggagaaagtc gggaaaaagg      120
ggattcccat cgaactccgt cctgcatcgt tcggtatcag ggtgcatctg cttcgattcc      180
gaatatagcc ctcttgata cacatagtgc cctaaagctt tttaacgtca gttcgacgtc      240
tatatataac gtgagttcga tataagcgtt atggtgccga ctctcataag tattgtcgat      300
caatcctttg ttgggttaac tataaccgat cagaaaatga aaggaaaaaa tttgacgtct      360
catcggatgt cgaagtctcc cgaagctgaa attctcaacc gagaaatgaa atacgttgac      420
aaacagcata ttgcatgttt tcttgatcgc aatccgcatt gttttatagc cgttcggaac      480
atactccgaa gggggtcgag ctacgcccta cagcgactcg ggctacgccg tanagcgtac      540
gagctgcgct ctacggctct ttcgagctac gctgaaggc      579

```

(2) INFORMATION FOR SEQ ID NO:1279

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 684 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...684

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1279

```

tctaaaagga tataccgatg aagatagtaa tatgcggaca gctatgcagt ctaccggcg      60
atttggactg gagcggatc gaagaaatgg gcgaatgctg ttctacgaat ataccgtcc      120
ggaggatttg actctgcgtg ctgtcgagct gaaatagtgc ttaccaacaa gactcctgtg      180
actgcggccg acatggaaaag atgccccacc tacgttacat cggactgatg attacaggcc      240
ttaatttata gatatggatg ctgctcgta gcgtggatc accataacga acatccccac      300
tatagcacag aatcagtagc ccaaattggca atctcgcatc tacgcacata accatgccga      360
tcggagaact ttcccggcag gtgaaagatg gtgctggcag agcaattacg aacaaatctc      420
tcgcaatact ttatcagata gactgagccg gactgacant ggcttttcgt gggaaacttg      480
ggcaataggt cacgtgtagc ggaaatggca cgtggattcg gcatgaagat tttggcacia      540
catccaaatc tccaatcgag ttgccttctt atatagaaaa gtcccgatgc ctggagaagc      600
ttttctcttc gggctgatgt gctgagctcg cattggcgct cacagtgcaa acccaaagat      660
ggttcggctg attagctggc cttg      684

```

(2) INFORMATION FOR SEQ ID NO:1280

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 629 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...629

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1280

gtcgttgagc	tttgcttgcg	agaatgtcag	atagaaagca	tgacttggtt	attgattttc	60
ctgctctaaa	aaagcttgat	ctatcgtata	accaaactcg	aagctagagg	gtctagaacg	120
tcttacttcg	ttaacaaaac	ttcgtctaga	agtaaccaaa	tccgtaaact	agagggcctg	180
gatatgtctc	cctcgcaca	aaactttctc	tctccgataa	ccaaatcagt	aagctagagg	240
gtctgaacgt	ctcacctcgt	tagcggagct	ttatcttttg	gataaccaa	tcagaaacta	300
gagggctcgg	aacgtctcac	gtccttaacg	gagctttatc	tgtgggtaac	caaatacagta	360
agctagagg	tctggaacgt	ctcacttcgt	tacaaagctt	cgtctaagaa	gtaaccagat	420
cagtaaaacta	gagggcctgg	aagtctcacc	tcgctaacaa	aactttctct	ctccgannta	480
accaaatacag	aagctagagg	gtctggaacg	tctcacctcg	ttagcggagc	tttatctttg	540
gataaccaa	tccgtaagct	ggagggctcg	gnnacgtctn	acgtccttgc	aacgcttgan	600
ctatcgggta	accaaataccg	taagcttg				629

(2) INFORMATION FOR SEQ ID NO:1281

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 594 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1281

aagagataaa	gcaaattgac	attgcttggt	accagcaaag	catcatacct	tcttcttcca	60
ttgctatacg	tacacgctct	tggcgtactt	ggagatctcc	ttcaaggctg	caggtgctaa	120
tttgatcata	atattttgag	attatttgat	taacgaaaca	aaagtactga	atagcatatt	180
cgcaagtcac	gaataacacg	atttatcagt	acagaaagct	gtcttatccg	attatagaaa	240
gtcttccgat	ttcccgaatt	gcttcttcta	tttgcgaaaa	tcccgtgcaa	tagtccatac	300
agtgtgtcta	tgcatttgct	ctctttactc	ctgatgcact	ttgaatctac	tcgaatgagc	360
ctcaaaagcc	tgctccggcg	ataactctcc	aatccggcaa	aattttattcg	accgacgaag	420
ctgtgtagca	ccactcctcg	atctgccatg	atccgttgcc	aatcgctgta	tggactatct	480
ccccttcaga	acaataccta	atcggtttcg	gcaatccggt	ggctatactc	gtctgtgtac	540
catggcatca	atacttaaca	atcgtgccac	ttaactctaa	ctatccagct	actc	594

(2) INFORMATION FOR SEQ ID NO:1282

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 730 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...730

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1282

```

gogatgcttt cgaaagattg cctcagccgg agccgattcg cagacggctg taogcgctcg      60
ctcctctcct gttcatgagg agcgaatggt tcatcagcga taggagattt gtgcgtgggc      120
gacacggtag cacatgcgcg ctccggatag gaatcatcga atccctcgaa ggagaaggcg      180
ataatgccaa ggctgagttt cgtttcaagc taaggtagga cgaaaacgtc tgttacttcg      240
gtttgcaagc tatccaaagt ggaaaaagat tcgatctgaa ctacagtgtt ctgtctcaaa      300
aacgtttagg acaactattgg gtgtacaccg gtttgctctt tgagtattat tgcttcgtgg      360
gggtatatatt cccaaaagca atcctttctt ctatctgttc aaaaccatga gactgactca      420
gccatccatg aggtgctcta attcaaagct aagtgtcgaa cgcccttgag ggtaagttct      480
gtgtacaaag tcgataaccg atatcgatc agtcaataac caaagatgaa tcatccgaga      540
tataacacga gggcgatggt catcataacc ggtgccccaa angtccagtc cggattgtag      600
agtgagatt ctattcctaa gagtccatta atagcatggg caggacatcg gtcattgatg      660
gtcgtccta atggattgca atcgagataa gtcgggtat tgggtcttcat agatggactg      720
agatagataa                                     730

```

(2) INFORMATION FOR SEQ ID NO:1283

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 921 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...921

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1283

```

ggcgtttaga ggccgattta gaccataata tcctgccgga gggcgccac aagctgctgg

```

60

ctcctatgcg	gaaatatgcc	ggcgtaagcc	attctttgcc	aaaagcgttt	cgatcagaca	120
gtagtatttc	acagcatctt	cagttgtcga	atgcctccgg	acagtttgat	accacgtact	180
tcgccaaaaa	gtccgtgtac	tgtttcagca	ccttgacacat	cgtataggct	gcttcaaggc	240
tcgctcgggg	tagcctttgc	ctgtggatgt	ctttacaaaa	tgtgcaccgg	agaaagggag	300
agaatcgtag	cgcgacggat	attctccggt	gttttcaatg	cgtgtctccc	agtatcactt	360
tgacggtagc	tccctttgct	gctgctattt	gccttcgatt	tccgtggccg	ctgcttcata	420
gtccccactt	aggaacttac	catattgagt	actatgtcta	tttcatctgc	tccatcgctt	480
acggccagtg	cgtttcggcc	aacttaactt	cgataaagct	ctgtgaagcg	gggaaacagc	540
actgacgctg	gccactttca	cgttttcggc	tgtgagcggt	tctctcacgt	ggagacgaag	600
ttgggggtata	cgcagatcgc	cgtacaggat	ggaatcgggg	atctgtgtcc	tcgaagtcac	660
tgacgctctc	ggtaaacttt	gtgatgactc	ctccgaatcc	gtggcggttc	gggcntgggc	720
agatcgatga	cgccagcagg	aattttcttcg	tttcgggagt	gtcgaatcgt	gaatagtgat	780
cccgattatt	tgatcggttt	tcagtaaaat	tctctcttct	gactcggccg	gatgaactga	840
gcgaaggcca	tttcgtattt	atttgcgtcc	attgttgtgt	agttcggtatt	ttgttgatgt	900
ctttctttgt	ctctaacggt	t				921

(2) INFORMATION FOR SEQ ID NO:1284

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 604 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1284

aggaagatat	ccgagcaatt	tcgatgccaa	ctcaaagggg	agcagcgagt	gactaccaga	60
tcatcatcac	gacagaagtg	cttgccggagg	gtatcaacta	caccgtgcc	acagcatact	120
caactacgat	actccatgga	atgctaccgc	ctgatgcaac	gcacggggcg	agtcaaccgc	180
atcggtctcc	aagctcctgc	gtctatgtct	ataacttcat	gccgagtgc	gagggagatg	240
ccgagtcaat	ctcgtcaaga	aagcatatac	caagctacag	tctttccaca	cactttcggt	300
gaggatagtc	aaatcttcag	tgaagaagaa	gaggttgtac	acccgagctg	aaaaccaga	360
tcgagggcgc	ggagtctgcc	ctagagcaat	actctacgag	ctcaaaacct	acaaggcgca	420
gcatccagaa	cgatacgact	aatcgctcgg	cagagcggaag	ggctagagtt	ggctgtatct	480
gagacagagg	gcaagctctc	ttcgtcgtcc	gcagccccaa	gtgccctgcg	atgttcgttg	540
ctatgatgcc	ctagaggata	agtgccttat	gctctctgcc	ccacagatta	cgaggctttc	600
cgct						604